A STUDY ON THE RELATIONSHIP OF EMOTIONAL REGULATION STRATEGIES ON ALEXITHYMIA AND CRAVINGS IN ALCOHOL DEPENDENCE

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Dedicated to

my teachers,

family &

friends

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LIST OF ABBREVIATIONS

A	Acceptance
AD	Alcohol Dependence
BEAQ	Brief experiential avoidance questionnaire
CD	Compulsive Drinking
CERQ	Cognitive emotion regulation questionnaire
CR	Cognitive Reappraisal
DDF	Difficulty Describing Feelings
DIF	Difficulty Identifying Feelings
EA	Experiential Avoidance
EOT	Externally Oriented Thinking
ERQ	Emotion Regulation Questionnaire
ES	Expressive Suppression
GHQ-12	General health questionnaire
NAD	Non- alcohol dependence
OCDS	Obsessive Compulsive Drinking Scale
OT	Obsessive Thoughts
R	Rumination
SADQ-C	Severity of alcohol dependence questionnaire
TAS-20	Toronto Alexithymia Scale

ABSTRACT

Introduction: Emotional regulation is the ability to exert control over one's own emotional state. It has been reported that emotional regulation strategies play a vital role in alcohol dependence. Alexithymia is a construct that characterizes inability to identify and describe emotions and dysfunction in emotional awareness. Alcohol craving is a strong desire for alcohol.

Aim of Study: Our aim was to study the relationship between emotional regulation strategies and alexithymia in alcohol and non-alcohol dependence. We wanted to explore the relationship between emotional regulation strategies and cravings in alcohol dependence. Another aim was to study the relationship of emotion regulation strategies on alexithymia and craving in moderate and severe alcohol dependence.

Materials & Methods: The study was conducted on 100 male patients with alcohol dependence from inpatient and outpatient department of Psychiatry of Dayanand Medical College & Hospital, Ludhiana. The study also included 100 males as a healthy control group from the general community. Information was collected through Severity of alcohol dependence questionnaire (SADQ-C), Emotion regulation questionnaire, Cognitive emotion regulation questionnaire (CERQ), Brief experiential avoidance questionnaire (BEAQ), Toronto Alexithymia Scale (TAS-20), Obsessive Compulsive Drinking Scale (OCDS), General health questionnaire (GHQ-12).

Results: Our results reveal the relationship of various adaptive and mal-adaptive emotion regulation strategies on alexithymia and craving**.** We studied correlation between different variables, the strongest correlation was found between experiential avoidance and cravings (r=.409, p-value= .035). The weakest correlation was explored between rumination and alexithymia (r=.368, p-value= .000). We found a negative correlation between acceptance and EOT (r= -.238, p- value= .0017) and also a negative correlation was found between acceptance and alexithymia total (r= -.254, p- value =.011). Craving has been depicted as the crucial variable which has a significant correlation with all maladaptive emotional regulation strategies.

Conclusion: On the basis of the above-mentioned points, we conclude that we have successfully studied adaptive and maladaptive emotional regulation strategies and their relationship with alexithymia and cravings in alcohol dependence.

Keywords*:* Emotion regulation strategies, Alexithymia, Cravings, Alcohol dependence, Non- alcohol dependence.

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INTRODUCTION

ALCOHOL DEPENDENCE

“Alcohol” is a well-known organic natured solvent which has been used for human consumption. Alcohol exists in various chemical forms, whereas beverages. Mostly alcohol is consumed in the forms of alcohol beverages such as beer, spirits and wines. There are non-beverage alcohol forms like tinctures, perfumes, and mouthwash in which alcohol content from minor to severe has been reported.[1,2] Ethanol has superior properties, due to which it has been used in intoxication purposes. Positive and negative effects of alcohol depend upon the consumption concentrations. Low to moderate alcohol consumption helps in improvement in mood, relaxation of body, increases courage and confidence. There are several negative impacts of alcohol on human health as consumption concentration increases. Major adverse effect of alcohol consumption arises from its potential to cause addiction. Due to such negative impacts which are serious in nature, it can be classified in the category of hard drug, but this is still topic to argue when we compare its side effects with other synthetic drugs. But, most of the government laws specially in western countries allow the consumption of alcohol as legal with certain minimum age restrictions.[3]

Dependence is defined as aggregate of behavioural, physiological and cognitive process which leads to the usage of particular substance at high priority with greater value for a particular person related to other individuals. The main characteristic which define the dependence behaviour is the desire which can be often strong and overpowering to take psychoactive drugs, alcohol, or tobacco which may or may not been medically prescribed. There are chances that individual can return to substance after a period of abstinence that can lead to a more rapid reappearance of other features of the syndrome than occurs with nondependent individuals.[4] Alcohol consumption can be related to long-term biological and social consequences through three

intermediate outcomes: intoxication, dependence and direct biochemical effects.[5]

Theories of Alcohol

There are two types of alcohol dependence theories: (1) biological theory and (2) psychological theories/ psychosocial theories.

Biological theory of alcohol dependence provides a way to describe different physiological routes and biological effects of consumption alcohol. It is known that acute consumption of alcohol leads to increase in inhibitory transmission that takes place at gamma-amino-butyric acid (GABA-A) channels and it also causes increment in serotonin (5HT-3) function, dopamine release and transmission which occur at opiate receptors. Acute alcohol consumption is also responsible for reduction of excitatory transmission in the NMDA subtype of the glutamate receptor.[6]

The psycho-dynamic model of alcohol dependency focuses on the fixation at the oral stage of psycho-sexual development or the individual regresses back to the oral stage of development. Further, it adds that the alcohol consumption helps in relieving the frustration when it is consumed through mouth. An expression of an unconscious ‘death wish’ is also expressed through alcohol addiction. Person who has a weak ego and the person is not strong enough to adapt successfully to the challenges thrown by life can easily engage into alcohol addiction. Therefore, it has been reported that the deficient ego has less chances to resist temptation. They do not recognise the harm being done to them and further they lose the ability to exercise self-control.[7]

The cognitive model of alcohol mainly consists of three parts: (1) attention allocation model of alcohol (AAM), (2) alcohol expectancy theory and (3) drinking refusal self-efficacy theory.

AAM comprises of two basic parts. First part of AAM depicts that the consumption of alcohol may have significant influence on the brain, this leads to the interference in the ability to do controlled and effortful

cognitive activities. Further it adds that when people go through the state of intoxication, they generally focus their attention on immediate internal and external cues. They become less capable to deal with subtle and more complexed aspects of a particular problem. This effect is also termed as alcohol myopia. Alcohol myopia is the situation which deals with marked tendency to engage in short sighted information processing. The second part of AAM deals with the nature of immediate environment. It states that an intoxicated person's behaviour is affected by the specific situation with which the person is confronted. This model also predicts that alcohol myopia can lead to drunken excess only in the situation in which strong cues are pulling from a response but in which the response is also inhibited by higher cognitive processing. [9,10]

Whereas alcohol expectancy theory suggests that the effects of alcohol are not only restricted to the physiological effects but also the function of the beliefs about the effects of alcohol. These beliefs may be related to different aspects of behaviour and the cognition in the form of 'if and then relationship'. The alcohol expectancy theory explains alcohol dependency in terms of increased socialization, relaxation, altered cognition and sexual enhancement.[10]

Then the third is drinking refusal self-efficacy theory (DRSE) which mainly focuses on the concept of self-efficacy. Self-efficacy defines the beliefs of an individual which enables that person to resist or refuse alcohol consumption in a particular situation.[11] Alcohol expectancy and DRSE theories have been derived from Bandura's social cognitive theory. It is further stated that the expectancies are differentiated into efficacy expectancy and outcome expectancy. The former refers to DRSE and later refers to alcohol expectancy. [12,13]

Cue exposure theory relies on the behaviour model of alcohol addiction. This theory establishes a link between environmental cues and drug abuse which is being supported by addiction modes that are generally based on classical conditioning. Cue plays a crucial role in

the development and maintenance of different addictions. A cue presence during the administration of the first drug might produce a conditional response. For example: mere sight of the drug, smell or rolling of paper take a different meaning that there is possibility that high is coming.[14]

EMOTIONAL REGULATION STRATEGIES

Emotions are important and regardful aspect of human life. It can be defined as a subjective feeling which varies from one individual to another. With revolution of life, different authors came up with different definitions of 'emotion'. Kleinginna et al. in 1981 categorised 92 different definitions of emotion for resolving terminology confusion.[15] The authors concluded that emotions could be defined as (a) verbal expression of feelings and emotions (b) noticing of the physical and bodily changes due to the emotional arousal (c) the emotional influence on the thought processes, perceptual processes and the manner in which an individual behaves (d) the motivation and the driving forces, of the emotions for example aggression, apprehension, sadness etc. (d) the manner by which emotional expression takes place, for example: verbal expression (speech, pitch, tone etc) and non-verbal expression (like facial cues and paralinguistic communication). The definition of emotions definition come from conflicting theories.[16]

Emotions could be described as a state of mind which comes into existence without an individual's conscious effort along with certain bodily changes. Whereas, affect is the conscious experience of these emotions.[17] Emotions help us in decision making, however, they can also stir a person (for example unpleasant states, sadness, frustration). They focussed on fact that our thinking is influenced by the emotions and the way how an individual perceives themselves, others and the world around them.[18]

A direct link between emotional states and a person's goals which further helps in behavioural changes via autonomic functioning and physical changes.[19] There are 6 basic emotions that are universally

present in all humans. These are expressed via non-verbal expression through facial expressions. These include fear, anger, happiness, disgust, sadness and surprise.[20]

These qualities make up the modal model of emotion.[21] Emotion response is generally generated in four steps, which include (1) situation, (2) attention, (3) appraisal, (4) response.

Emotions are vigorous in nature which makes them difficult to understand. Ehen there is an excess of emotional arousal, it may lead to decline performance capability, decision making and problem-solving ability of some individuals. On other hand, it can have positive impact on some individuals. Let's understand this with an example, fear of exam failure can result in exam anxiety that can hamper an individual's performance in the exam. Whereas, in certain dangerous situations, for example, when threatened by an aggressor, the emotional expression like frightened, fear and anxiety might be adaptive as per the evolutionary perspective, because it activates the fight and fight responses. Under dualistic and paradoxical situations, the emotional regulation comes into play.

The emotional regulation is a set of processes that are heterogeneous in nature, this leads to modulate a person's emotions.[20] The postulated definition of emotional regulation consists of both the 'up' and 'down' regulations because individuals can decrease, increase or may also maintain their positive and negative emotions.[22]

There are various aspects of emotion and nearly every aspect of an emotional experience could be regulated. Many researchers have emphasized on several strategies that help in emotion regulation.[23] There are many studies that have exhibited which confirms that emotion regulation can come into play when there is any change in the focus of attention, reappraising the scenario, modification of the scenario and by emotional suppression.[24] Emotional regulation strategies vary from an individual to individual in terms of choice and usage. Some factors like personality traits, environmental influencers

and dispositions of an individual can play an important role in selection and utilization of emotion regulation strategies.[25] People who can regulate their emotions in controlled way, have ability to manage, deal and modify the intensity, duration and impact of their emotions, rather than switching from one emotion to another emotion.[26] These individuals usually have psychological flexibility, which enables them to deal effectively with the problems or the demands of the situation.[27] Psychological flexibility is quite dynamic in nature, it can be defined as an individual's capacity to change the behaviour reactions and complete thought process in response to change in the environmental.[28] It may also include emotional, behavioural and cognitive changes.[29]

Emotion regulation as mentioned earlier is a dynamic process which mainly consists of two types of appraisals: (1) primary appraisal and (2) secondary appraisal of emotional stimuli.[30] The primary appraisal of emotional stimuli is an automatic and uncontrolled in nature which depicts one's emotional sensitivity. Whereas secondary appraisal is a well-controlled process which refers to emotional regulation.[31]

In primary appraisal process, emotions are only registered but not elaborated deeply. [32] This input results in better control and monitoring procedures which can define emotion regulation. Secondary appraisal occurs when an individual pounder what can be done in order to manage the current situation. Here, coping strategies are identified and implemented.[33] On the other hand, if the individual considers the situation cannot be changed, such as loss of the loved one then there is likelihood that emotion focused strategies will be used by the person. The secondary appraisal can be affected with few factors such as individual aims, traits of personality, the recognition, and availability of resources along with proper assessment of demands of the situation. Environmental factors such as social support network or stressor's duration also affect the secondary appraisal.[34]

Another important part of emotion regulation is that it is related to achievement of one's goals in life and ways one can achieve those required goals and results (Gross, 2007).[19]

Emotion regulation is considered as multi-facet in nature. It may be related to the goal achievement, need satisfaction (i.e., need oriented emotion regulation) and the effective functioning of the personality. In the hedonistic emotion regulation, we mainly focus on the short-term results while the long-term consequences are usually overlooked or neglected.[35] Another example of hedonistic emotion regulation is coping that is repressive which leads to restriction to attentional focus.[36] Whereas, the person-oriented emotional regulation strategy targets both attention as well as the body, such as in the mindfulness-training.[37] Mindfulness training is well known holistic approach which focuses on the attention and the awareness of present-moment through deep breathing and relaxation techniques.[38]

There is another model of emotion regulation strategy that provides better insight of these strategies.[39] The proposed model lays emphasis on the emotion generating process in which five important points those are selection of situation, modification of situation, shift of attention, cognitive reappraisal and response modulation has been regulated.

These regulation points can further be categorized into two ways: 'antecedent-focused strategies' and 'response-focused strategies. The former occurs in the early process of emotion-generation through the modification of the impact of emotion-eliciting cues. It includes important sections such as selection of situation, modification of situation, attentional shift and cognitive reappraisal. Whereas the later occurs late in the emotion-generating process by modifying the behaviour and facial expression due to the current emotion. Although cognitive reappraisal can happen prior to the attentional shift in certain situations. The reappraisal is usually used to down-regulate negative affect; but it can also be used to up-regulate both positive and negative

affect. For example, introspection after a heated moment with another person can switch a person's rage into sympathy.[40]

Amongst those who use cognitive reappraisal (CR) more often have better interpersonal relationships along with mental well-being in comparison to the individuals who use more emotional suppression (ES).[40] The use of cognitive reappraisal is being negatively correlated with risk-taking behaviours.[41] and facilitates goal directed decision making during reward processing, which may have positive impacts on addiction research.[42]

The people who usually use emotional suppression as emotional regulation strategy generally have increased negative affect, little positive affect, quite low social functioning and high depressive symptomology along with obsessive thinking.[43]

Few models focus on the cognitive emotion regulation and the patterns of thinking consciously or unconsciously that occur when encountered with an emotion arousing situation.[44] The model of cognitive emotion regulation on rumination was proposed by Susan, Nolen-Hoeksema's is based on strategies like rumination and distraction. [45] Further, Garnefski and colleagues (2001) [44] proposed that there are nine strategies of emotion regulation which includes rumination, catastrophizing, self-blames other-blame, acceptance, positive reappraisal, putting into viewpoint, positive refocusing and refocus on planning. Recently, there has been increased interest in other types of emotion regulation strategies. Acceptance (A), rumination (R) and experiential avoidance (EA) are amongst them.

Rumination is a new construct to the cognitive emotional regulation strategies. It plays an important role in controlling negative effects in an individual by heightening self-focused attention.[45] It is generally related to both dysphoric and nondysphoric consequences.[46]

Another concept which includes acceptance, is a self-regulation technique relies on an open and welcoming attitude toward individual's own emotions, thoughts, or external events.[47] Acceptance based

therapeutic approaches has been developed rapidly since 1990s which shows high capabilities of this technique. For example, the role of acceptance was highlighted in the Acceptance and Commitment Therapy along with some other approaches. Acceptance is considered as a distinct strategy from other frequently studied ways of regulating emotion (e.g., suppression, most forms of cognitive reappraisal, rumination) that are most often based on some form of active modification of emotional state in terms of quality, strength, length, or frequency of emotion.[48]

Experiential avoidance (EA) is the process which occurs when an individual is not ready to experience particular internal experiences and tries to manipulate them accordingly. EA is not responsible in distinguishing between private events (i.e., avoidance of emotions vs. avoidance of cognitions), but it is responsible for their intermingled. “Avoidance” includes both overt and covert escape type of behaviours but applicable only when one’s intention is to alter current experience.[48,49]

ALEXITHYMIA

The word alexithymia comes from Greek word meaning a = lack, lexis = word and thymos = emotion, mood, or feeling) i.e., lack of words for emotions and feelings. It was coined by Sifneos in 1972 and refers to individuals who have difficulty describing their emotional state. It is a multifaceted personality construct that has been associated with various medical and psychiatric disorders.[50]

Alexithymia constitutes of the following: 1) difficulty identifying and describing subjective feelings; 2) difficulty distinguishing between feelings and the bodily sensations of emotional arousal; 3) constricted imaginal capacities, as evidenced by a paucity of fantasies; and 4) an externally oriented cognitive style.[51]

The alexithymia consists of a group of cognitive and affective characteristics that were earlier seen amongst the patients with psychosomatic diseases and then later were also observed in patients

with substance use disorders, panic disorder, anxiety disorder posttraumatic stress disorders, and eating disorders.[52]

In the past many psychoanalysts have laid emphasis on patients that have problem in describing their feelings, lack of interest and curiosity in their subjective lives, have difficulty in sharing and describing their dreams and desires and exhibit a unique style of thinking and living which is externally oriented.[53]

In the past, different therapists and researchers have given different names to people with alexithymia as these people have problems in dealing, describing and expressing their emotions. Such individuals were labelled as “immature or infantile personalities, normopaths, “normotics”, “antianalysands”. [54] A French psychoanalyst introduced the word “pensée opératoire” which means that alexithymia individuals have externally oriented cognitive style and also, they do not possess drive related fantasies.[55]

Alexithymia is represented by an individual’s inability in imagination along with their lack of mental ability to represent and describe emotions.[56] The recognition of one’s emotional state and to deal effectively with these emotions play a vital role in emotional regulation. As the alexithymic individuals have lack this ability, therefore, they are vulnerable to experience negative emotions.[57]

Earlier several psychoanalysts have put forward different psychological models and have highlighted the role of defense mechanisms in order to understand alexithymia. According to Alexithymia acts as an ego defense mechanism where it acts against anxiety and underlying unresolved conflicts. On the other hand, it is also considered that alexithymia is a defense in a teleological sense because it is an arrest in affective and cognitive development.[56] The defense theory and deficit theory as a valid explanation of alexithymia. The defense theory focuses on denial as an important defense mechanism against unbearable pain rather than anxieties. The deficit model exhibits the psychosomatic problems as a result of ego deficits especially inability

in the fantasy formation, analysing and expressing emotions. [58] The theory postulates that it is not the inhibition of emotions or affects rather it is lack of important functions.

Alexithymia is classified into primary, secondary and organic alexithymia.

Alexithymia is termed as acute ailment if it emerges “as a life-long dispositional factor that can lead to psychosomatic illness”.[59] Primary alexithymia may arise from a psychic trauma which took place in the childhood. Thus, primary alexithymia is related to a more or less stable personality trait which generally molds during childhood and early years of adulthood. Hence, primary alexithymia is formation occurs in one’s nature. Whears secondary alexithymia does not arise during childhood, but it is a cumulative result of events which occur later stages of life. These events may have psychological significance or medical-surgical effects (illnesses or disease). Therefore, secondary alexithymia considered to have both psychological as well as somatic mechanisms, latter related to organic techniques. The term organic alexithymia defined as a condition in which alexithymia occur due to organic damage to brain structures which are responsible for emotional processing. Organic alexithymia is highly resistant to treatment, it is not related with a specific pre-morbid personality but with cognitive impairment.[60]

CRAVINGS

Craving can be defined as a motivational state which is subjective in nature. Cravings also have an emotional significance to individuals. It also has a close association with the maintenance of substance taking behaviour and is one of the major causes of relapse in the abstains and the individuals trying to quit alcohol and other drugs.[61] Both the expert committee on alcohol and the expert committee on mental health of the World Health Organization (WHO) officially organised a meet in 1954 to discuss and clarify the term ‘craving’ and its significance in alcohol research. Craving played a vital role in

substance use disorders (SUD) and addiction as cravings are considered to the initiation of heavy drinking as well as relapse.[62]

The strong desire for alcohol is characterized by the underlying cravings. It is linked with inability to resist drinking desires which are further supported by obsessive thoughts. It plays an important role in the pathogenesis of alcohol-dependence and relapse.[63] According ICD-10 and DSM- 5 craving is an important part in criteria for alcohol use disorder. It has also been related to reward, relief, and obsessive motives (3 pathway psychobiological model).[64]

Most people understand the sudden desire or need that they often experience for a certain substance, food and sometimes even an activity, where the underlying cravings are central to such desires. The occasional drinkers and drug users often develop an addiction due to obsessive cravings which is different from increased liking for alcohol or drugs.[65]

In the past the term ‘craving’ has been used in various ways and many researchers have given operational definitions from time to time. There has been difference in opinions ranging from the nature to the relevance of the topic. Some people think craving is a hypothetical construct but there is conflict of thoughts who think craving is a major determinant of drug taking behaviour and this conflict can be ignored in scientific studies.[61]

The research on drug consuming behaviour, suggested that craving as a strong, overpowering urge for opiate use during acute withdrawal. This definition was later generalised to all substance abusers under unspecified conditions.[66] Craving has also been considered to be a tautological concept.[67] According to this definition though, if an individual drank, then it was because he or she must be craving.

The association between craving and drug-use is not always a consistent one. If craving was the motivational core of alcoholism then all incidents of relapse should be preceded by a craving

episode.[68]

Craving is an epiphenomenon; where craving is a cognitive rationalisation often used by drinkers in order to explain relapse, but one which is neither necessary or sufficient to cause relapse. Though this definition explains why craving does not always lead to relapse, or why sometimes relapse occurs without craving, anyhow it fails to provide a complete description of the craving.[69]

Craving is a "central state", it means one's desire to consume alcohol. It is considered as motivational state which increases the possibility of drug or alcohol consumption.[70]

Some definitions confuse craving or urge with the intention to consume the desired substance the failure to distinguish between desires and their triggers, intentions and behaviour lead to problems in the investigation of the causal relationship between the concepts.[71]

So, it is clear that there is lack of a valid, uniform and proper definition of craving. This means that clinicians may not be able to accurately assess their patient's level of craving or measure the changes in craving that can play a major role in improvement or decline in the patient's condition.[72]

THEORIES OF CRAVING

In past recent years different researchers have made an attempt to define, measure and explain the phenomenon. The major theories of craving are grossly divided into three main categories: conditioning, neurophysiological or cognitive models.

According to the conditioning models craving is the outcome of conditioned appetitive behaviour.[73] Stimulus which is repeatedly paired with withdrawal is called the conditioned stimuli which elicits the conditioned withdrawal effects and causes craving. Addicts further then look out the target substance in order to relieve from the conditioned withdrawal effects.[74]

The conditioned-withdrawal model proposed that neutral stimuli (for example: rolling of paper, mere sight of a needle or watching other person hold a cigarette or smoking), over the course of many pairings with drug taking, elicits physiological withdrawal responses through conditioning. The conditioned withdrawal often results into relapse due to the desire to relieve the conditioned withdrawal experience. Here, craving is regarded as a negative and dysphoric state and the key element of conditioned withdrawal that drives the relapse process.[75]

The sight or smell of a drink when is repeatedly paired with a falling level of blood alcohol on the morning after a heavy drinking session when the individual is in a state of alcoholic withdrawal. After a period of abstinence, the sight or smell of a drink can elicit a conditioned withdrawal response, that resembles to alcohol withdrawal. According to this model, as cravings are part of the withdrawal, conditioned craving is elicited as part of the conditioned withdrawal response. Drinking alcohol relieves the craving and the withdrawal symptoms.[76]

According to Siegel's model (1989) [77] which is based on the opponent process theory proposed by Solomon and Corbitt (1974) [78] suggests that in substance use, the human body develops opponent processes that are homeostatic responses, which counteract the drug's effects over the course of a drinking or drug taking behaviour. According to this model, if a drug causes a positive hedonic state, the homeostatic response would be negative or displeasure. This opponent process gradually develops with time and further leads to tolerance.

Neurophysiological Models

The neurophysiological models of craving are important aspect as they rely on the neuro-chemical along with molecular changes that take place in the brain when the drug is used in first phase. This leads to cause drug dependence. It has been reported that drugs act through neuro-physiological processes, which relies on the abnormal tasking of the dopamine system. Addictive process is the result of permanent

neural changes which leads to formation of cravings that are experienced during abstinence.[79]

Neurochemical studies explains that addictive use of drugs is related to conditioning and cognitive processes. Psychomotor Stimulant Theory of Addiction is quite relevant example to this aspect.[80] This theory states that all addictive drugs exhibit some psychomotor stimulant actions. This model relates the drug addiction to operant reinforcement on the basis of independent psychomotor stimulant properties which can act as predictors for knowing whether reinforcement in operant situation is proved by particular drug or not. The major point in this theory of addiction states how much reinforcing effects can be caused by a drug are calculated from its ability to induce psychomotor stimulations. The theory also reveals that the biological mechanism involved in these parameters is almost same as the biological processes involved in the reinforcing effects of the addictive drugs.

Then comes another model known as Incentive Sensitisation Theory.[81] It explains addiction and addictive behaviours instead of craving. But it still helps to understand the nature of craving. It depicts that the characteristics which define the addiction (craving and relapse) are directly related to drug-induced changes in those functions which are normally sub-served by a neural system. And this system undergoes sensitisation-related neural adaptation [81]. Craving can be defined as a conscious situation which takes place when the person pays too much attention to stimuli caused by consumption of a drug or considers that stimuli as excessively attractive. This theory helps to distinguish between "wanting a drug" and "liking a drug". The theory revealed that the neural system is mainly responsible when one person seeks a drug and gets sensitised by repeated drug use. This situation can lead to incentive motivation which separates this system from others in terms of explaining the enjoyable effects of drugs. The main drug pleasurers' present in neural system are endogenous opioid neuro-transmitter and situation arises from the activation of benzodiazepine 'GABA' within the brain stem. The theory proposed

that pleasure derived from drugs is not the reason of the progressive increase in drug ‘wanting’ which generally characterized addiction. This theory further added that wanting to have a drug may sometimes occur without any conscious thought, it means that relapse may take place without having any conscious awareness. The model also describes that craving is epiphenomenal as well as hypothesised (unconscious) process which further leads to addiction and relapse.

Cognitive Approaches to Craving

Cognitive model has played a crucial role in to study causes and treatment of alcoholism. This brings focus on the need of hour is to understand and monitor addicts by using alcohol craving as important part of alcohol treatment. The identification of the cognitive experience is really important to study craving expressions as it can help the clinicians in better understanding and monitoring the impairments that generally take place in cognitive self-regulation and coping skills of an individual.[82]

Many studies have explored the association of cognitive factors and relapse. Self-efficacy or the individual's ability to resist or remain abstinence is positively correlated with maintenance of smoking cessation.[83]

The two important aspects of craving are differentiated such as automatic (involuntary) and non-automatic (voluntary) processes. The automatised processes are fast, stimulus-bound and occurs without any conscious effort and control. They suggested that the substance use behaviour which includes seeking and consuming drugs on repeated use becomes an automated process. Lack of self-controls leads to prolonged use of drug. The model focuses on the fact that alcohol/drug can be considered independent of the mechanisms which can control self-aspects of craving.[84] Cravings occur due to a non-automatic mechanism which is generally considered as concentrated effort comprised of limited cognitive capacity. It concludes that craving

may represent the non-automatic processes' activation that parallel to the automatized drug use sequences.

This theory is considered as quite significant because it is responsible for the disruptive impact of the cravings which have impact on the routine life of addicts. It depicts that an addict is not much capable to cope with situations which demand cognitive thinking as an individual's cognitive resources are very limited. Another important point in Tiffany's theory is that the non-automatic processes which comprised of craving are limited in capacity. This can be understood in terms that any concurrent task takes place which demands the implication of non-automatic processes would be interfered with some craving experience.[84]

AIMS & OBJECTIVES

AIMS

To study the relationship of emotional regulation strategies on alexithymia and cravings in AD

OBJECTIVES OF THE STUDY

To study:

1. The relationship between emotional regulation strategies and alexithymia in AD and NAD.
2. The relationship between emotional regulation strategies and cravings in AD.
3. The relationship of emotion regulation strategies on alexithymia and craving in moderate and severe AD.

REVIEW OF LITERATURE

The following researches have been conducted in past that have focused on the emotional regulation strategies, alexithymia, cravings and AD.

Emotional Regulation Strategies

Emotional regulation strategies are the processes which helps an individual in modifying their emotions, that can either be via their conscious efforts or non-conscious (Rottenberg & Gross, 2003) [85]. These strategies are used in order to deal effectively and respond appropriately as per the demands of the surrounding environment (Campbell-Sills & Barlow, 2007) [86]. Difficulties in employing appropriate and adaptive emotional regulation strategies may lead into distress and psychopathology in different individuals (Greenberg, 2002).[87] Bratslavsky and Baumeister (2001) [88] postulated individuals that fail in modulating their emotions effectively result into engaging alcohol consuming behaviour, which in long run leads to addiction. Whereas, on the other hand, literature suggests use of effective emotional regulation strategies leads to good health and healthy interpersonal relationships (Brackett & Salovey, 2004).[89]

The literature review suggests the differentiation of emotional regulation strategies into two broad categories, namely, adaptive and maladaptive emotional regulation strategies (Folkman & Lazarus, 1986).[31] The adaptive strategies include reappraisal and problem solving. The former indicates the positive perspective or interpretations when encountered with a distressing situation. Therefore, reappraisal helps in reducing stress and deal appropriately with the situation (Gross, 1998).[21] Problem solving PS is a conscious effort of an individual in response to deal with distressing situation. Anyhow, the problem-solving responses are not necessarily the direct efforts for regulation of emotions. These responses can prove out be beneficial by altering the emotions or by stressor elimination. Inability or poor problem-solving ability can lead to mental disorders like depression, anxiety, adjustment disorder, alcohol use disorder insomnia or

hypersomnia (D'Zurilla & Maydeu-Olivares, 1988) [90]. Recent studies have highlighted mindfulness and acceptance as the adaptive forms of emotional regulation (Gratz & Roemer, 2004) [91]. Use of acceptance as emotional regulation strategy has been associated to with good health results, while less use of acceptance has been associated with anxiety disorder, depression, borderline personality disorder and substance use disorder (Tull & Roemer, 2007)[92].

The two main maladaptive emotional regulation strategies are suppression and avoidance. These two maladaptive strategies have been positively correlated with increased stress levels, depression, anxiety and substance use disorder (Carver et al., 1989) [93]. The expressive suppression reduces the outward emotional expression and subjective emotional experience in the short term, although it is comparatively less effective in reducing physiological arousal in the long term (John & Gross, 2004) [94]. Hayes et al. (1999) [95] studied experiential avoidance, which refers to the avoidance of thoughts, emotions, sensations and memories. According to Hayes et al. (2004)[96] experiential avoidance has been closely associated with psychopathology like mood disorders and substance use as this emotional regulation prevents a person to take the required decisions and actions.

Emotional Regulation Strategies and Alcohol Dependence

Petit et al., (2015) [97] investigated emotional regulation in patients with AD. The results depicted that patients with alcohol dependence AD had greater use of response modulation and attentional deployment along with lesser use of cognitive change.

Norberg et al. (2016) [98] conducted a study to explore whether the use of emotional regulation strategy had an impact on the alcohol drinking behavior and problems related to it on undergraduate students. The results showed that greater use of reappraisal was related to lesser number of alcohol problems whereas, suppression was found to have a positive correlation with drinking prior a major

event.

Alexithymia

Lane et al. (1998) [99] studied on sociodemographic correlated with alexithymia. The 380 subjects were administered TAS-20, Levels of Emotional Awareness Scale (LEAS). The results showed alexithymia and LEAS had significant correlation with age, sex, socioeconomic status and education. Alexithymia also showed close association with older age, male sex and lower socio-economic status and low education.

Honkalampi et al. (2000) [100] examined the relationship between depression and alexithymia in the general population. The results exhibited a strong association between depression and alexithymia. The social factors had a significant effect on alexithymia and was found to be a primary cause leading to depression. The study also found gender differences in alexithymia in and women with depression, where men were found to high on alexithymia than females.

Haatainen et al. (2003) [101] studied the prevalence and the factors associated with hopelessness in general population. The results exhibited that moderate level of hopelessness was associated with poor financial condition, poor subjective health and less working ability. The subjects that were high on depression, dissatisfaction of life and alexithymia were also high on hopelessness (i.e., moderate or severe).

Thorberg et al. (2009) [102] conducted a critical review of the literature on alexithymia and alcohol related disorders, reviewing 24 studies published between 1973 and 2008. A high prevalence of alexithymia was identified among AD populations, however the review only provided preliminary evidence for a relationship between alexithymia and alcohol consumption, and limited evidence to support alexithymia as an independent risk factor for the development and maintenance of AD.

Emotional Regulation Strategies and Alexithymia

Taylor (2000) [103] studied the different constructs of alexithymia by studying the past and recent trends in the research of alexithymia. The study concluded that alexithymia is linked with faulty emotional regulation strategies, low emotional intelligence and low rapid eye movement density (REM). The literature review suggests that alexithymia has a close association with psychosomatic disorders. The study also suggested that psychotherapies and techniques enhancing the emotional awareness, arousal and effective use of emotional regulation strategies can help in correcting different domains of alexithymia.

Swart et al. (2009) [104] reported in their research on alexithymia and emotional regulation strategies, the individuals that were high on alexithymia scored low on CR and high score on ES. The research was conducted to two groups of healthy individuals. The Bermond-Vorst Alexithymia Questionnaire, emotion regulation questionnaire (ERQ) and different emotion processing tasks were administered to the subjects. The researchers concluded that alexithymia is related to poor performance on emotional processing tasks that focused on early processing and higher order mentalizing. The findings did not find significant results with respect to the difficulties in the emotional language processing.

Chen et al., (2011) [105] studied the relation between the ERS and various constructs of alexithymia. The researchers administered Toronto Alexithymia Scale (TAS-20) on 1788 college students. They found three main alexithymia subgroups which had difference in scores on the three domains of TAS-20 i.e., difficulties in identifying emotions, difficulties in verbalizing emotions and externally oriented cognitive style of thinking along with one non alexithymia subgroup. The results reflected that the first subgroup of alexithymia scored high on all the domains of TAS-20. Whereas, the second sub-group scored high on difficulties in identifying emotions and difficulties in verbalizing emotions. The same group scored low on externally oriented cognitive

style of thinking. And the third alexithymia subgroup scored high on latter and had scores within normal range on the other domains (i.e., extrovert high alexithymia). Low scores were observed on all the domains in the non- alexithymia subgroup. Also, the two alexithymia sub-groups had low score on the CR and high score on ES in comparison to the non-alexithymia subgroup.

Pandey, Saxena and Dubey (2011) [106] depicted in their research individuals with alexithymia experienced greater difficulties with emotional regulation than the individuals with non-alexithymia. The alexithymia individuals have more problems regarding health than the non-alexithymia individuals. The study suggested that health problems of alexithymics is rooted in their difficulties in emotional regulation.

Venta et al. (2012) [107] studied the relationship between emotion regulation, experiential avoidance and alexithymia on the basis whether adolescents who had high scores on a measure of alexithymia would report deficits in emotion regulation and EA. They further explored the role of EA when used as mediator in the relation between alexithymia and emotional regulation. They took sample population (N=64) of adolescents, out of which 30% had alexithymia. Results of their study revealed that the use of experiential avoidance as mediator in the relation between alexithymia and emotional regulation leads to inability of population to effectively use language to identify and describe emotional states.

Stasiewicz et al., (2013) [108] researched on the relationship of alexithymia and different emotional regulation strategies in AD patients. The study also explored the effect of alexithymia on attrition and the outcome of the treatment in the patients under CBT treatment. The results reflected that individuals that scored high on alexithymia had poor hold on their emotional regulation. There was no relation between alexithymia, attrition and alcohol intake levels post treatment.

Laloyaux et al. (2015) [109] explored the link between alexithymia and

various emotional regulation strategies. The results showed that alexithymia was associated to suppression, especially to difficulty in verbalizing emotions. The authors emphasised on the ability to communicate and to name one's emotions is a vital element in alexithymia. The research results also depicted that with respect to sociodemographic variables alexithymia and use of ES had positive correlation with age and was also found to be more common in men.

Ghorbani et al. (2017) [110] researched on alexithymia, emotion regulation, difficulties in emotion regulation, positive and negative affect, and suicidal risk in patients with AD. The study found that patients with AD were high on alexithymia along with high scores on the emotion regulation difficulties i.e., suppression. AD patients also scored high on negative affect and suicide ideation in comparison to the healthy control group.

Lyvers et al., (2018) [111] revealed an important factor whether externally oriented thinking (EOT) mediates the association of drinking with these deficits and they provide a way to test the hypothesis that impaired facial emotion recognition mediates the relationship between EOT and low emotional empathy. The major findings also point to a likely role of the EOT trait in the reported associations of alcohol misuse with both poor emotion recognition and low emotional empathy, and a mediating role of poor emotion recognition in the relationship of EOT to the latter.

Lyvers et al. (2018) [112] studied the relationship of social interaction anxiety, alexithymia with motive of drinking to cope with negative affect in university students. The results showed positive correlation between drinking behavior and motive of drinking to cope. Alexithymia acted as a mediator between social interaction anxiety and the coping motives.

Fabian et al (2020) [113] done a study to examine alexithymia and emotion regulation in patients suffering from Raynaud's disease (RD). They took sample population (N=110) diagnosed with RD. They used

toronto alexithymia scale (TAS) to measure alexithymia and ERQ for examining emotional regulations. On the basis of their study, they concluded that elevated levels of alexithymia were significantly related to higher levels of suppression and lower levels of reappraisal in the whole sample. They further added that alexithymic patients generally find it hard to differentiate different emotion-related regulation strategies as there was a significant association between the scores on the ES and CR.

More recently, Victor et al. (2021) [114] done a study to evaluate the validity of the emotional regulation strategies in correlation with empathy and alexithymia. They examined psychometric properties through ERQ in a Mexican community with sample size (N) of 792. They studied CR and ES in correlation with alexithymia. They concluded many valuable points on the basis of their studies such that women generally tend to use less expressive suppression than men. CR scores were negatively correlated with alexithymia, on other hand ES scores were highly positive correlated with personal distress and alexithymia

Emotional Regulation Strategies and Cravings

Kobler et al. (2009) [115] studied that craving of cigarette is a significant contributor to smoking. The study included 20 subjects that smoked cigarettes less than 12 per day, 22 tobacco “chippers” more than 6 per day and twenty non-smoking controls. In the experiment participants were shown photographs of cigarettes and foods that earlier induced cravings in these subjects. In each trial, subjects were instructed to think about the food and cigarettes in either way: the short term and long-term consequences of the intake or consumption of these items. The results revealed that subjects had less food cravings when they concentrated on the long-term consequences with respect to eating food items also when considered the long-term effects of smoking the subjects reported reduction in cravings. Therefore, the study exhibited the importance of cognition in cravings. The authors concluded that with the help of this test the understanding of various cognitive

strategies in craving could be studied which would further help in nonpharmacological management of substance use, cravings resulting into prevention from relapse.

Rogojanski et al. (2011) [116] conducted a comparative study on two types of emotion regulation strategies namely ES and mindfulness-based strategies in cigarettes. A total of 61 participants voluntarily took part in the study. These subjects were randomly assigned to the use of two strategies. The study was an experimental study in which the subjects were exposed to cigarettes. During the research subjects were assessed on various self-report measures., which were both before and after being exposed to the cue. In both pre- and post-the subjects were found to have increase in self efficacy in coping with cravings resulting into decrease in smoking. The subjects in the mindfulness group had decrease in negative affect, reduction in depressive symptoms along with reduction in nicotine dependence. Although both the conditions were related to reduction in cravings of smoking but the mindfulness-based strategy had comparatively better results.

Szasz et al. (2012) [117] conducted a research to check the impact of emotion regulation strategies on craving in smokers, attentional bias, and persistence of task. The study was conducted on 94 UG students that reported of smoking more than ten cigarettes in a day. The results revealed that the reappraisal is more effective in comparison to suppression in order to deal effectively with the problems of smokers. Also, the subjects that considered about the harmful side effects of smoking had low cravings, scored low on negative affect and performed better on the distressing task. Whereas, individuals that used A and ES as the emotional regulation strategy showed high cravings, scored high on negative affect and did not perform well on distressing task.

Giuliani, Calcott, Berkman (2012) [118] studied the CR in cravings of food. The participants choose different categories of craved and not

craved food items that were high in the energy content, for example junk food. These food items were presented as a stimulus and the subjects were asked to either keep looking at the stimuli or to reappraise them in order to lessen the craving for the food item. The test findings exhibited that reappraisal helped in the reduction of both the craved and non-craved food items.

Nasir et al. (2015) [119] conducted a research in an attempt to study the role of CR in cravings for AD patients and individuals that drank socially. The study included 19 individuals that were not under treatment, 19 patients with AD and 21 individuals that were social drinkers. It was an experimental study in which the capability to decrease the cravings that were cue induced by thinking about the long- term negative consequences of alcohol consumption. The results showed that decrease in cravings by using cognitive regulation was more in social drinkers in comparison to the AD patients. Therefore, the authors concluded that AD is related to deficits in cognitive regulation of cravings that were cue induced. The results were not only applicable to alcohol cravings but also to regulation of food cravings.

MATERIALS AND METHODS

RESEARCH DESIGN

The present research is a cross sectional study. The participants for the study group were selected from DMC&H hospital, whereas, the participants for the control group were selected from the general population.

It is a quantitative study and the independent variable was emotion regulation strategies and the dependent variables were alexithymia and cravings.

Source of Data

The study was conducted on 100 male patients with alcohol dependence from inpatient and outpatient department of Psychiatry of Dayanand Medical College & Hospital, Ludhiana. The study also included 100 males as a healthy control group from the general community.

METHOD OF COLLECTION OF DATA SAMPLE COLLECTION

A total of 200 subjects (100 males with alcohol dependence and 100 males without alcohol dependence) of age range 18 to 70 years participated in the study. The males with alcohol dependence were selected from inpatient and outpatient department of Psychiatry of Dayanand Medical College & Hospital, Ludhiana. The healthy control subjects were selected from general population. The purposive sampling technique was chosen to select the participants.

Inclusion Criteria for Study Group

1. Only males were selected.
2. The patients with principal diagnosis of AD.
3. The patients with a diagnosis/ severity of moderate AD.
4. The patients with a diagnosis/ severity of severe AD.
5. Patients undergoing treatment for AD from DMC&H, Ludhiana.

Exclusion Criteria for Study Group

1. The patients with a diagnosis of mild AD.
2. The study excluded females

3. Patients with any comorbid psychiatric disorders.
4. Patients with any other substance dependence, except nicotine.
5. Patients with any organic illness or condition

Inclusion Criteria for Control Group

1. Subjects were selected from general population
2. Only males were be selected.
3. The patients without a diagnosis of AD.
4. The patients without a diagnosis of psychoactive substance use disorder.

Exclusion Criteria Control Group

1. The study excluded females
2. Males with any other major psychiatric illness.
3. Males with any organic illness/ condition
4. The patients with a diagnosis of AD.
5. The patients with a diagnosis of psychoactive substance use disorder.

METHODOLOGY

The study was conducted on 100 male patients with AD and 100 males with NAD (control group) from 18 to 70 years of age, undergoing treatment from department of Psychiatry (inpatient and outpatient) at Dayanand Medical College & Hospital, Ludhiana. Socio Demographic Proforma was filled containing the basic information of the subjects. A written consent form was duly signed by all the participants. The participants were assessed on self-reported measures of Severity of alcohol dependence questionnaire (SADQ-C), Emotion regulation questionnaire, Cognitive emotion regulation questionnaire (CERQ), Brief experiential avoidance questionnaire (BEAQ), Toronto Alexithymia Scale (TAS-20), Obsessive Compulsive Drinking Scale (OCDS), General health questionnaire (GHQ-12).

TOOLS

- Socio-demographic proforma
- Severity of Alcohol Dependence Questionnaire (SADQ-C)

- Emotion Regulation Questionnaire
- Cognitive Emotion Regulation Questionnaire (CERQ)
- Brief Experiential Avoidance Questionnaire (BEAQ)
- Toronto Alexithymia Scale (TAS-20)
- Obsessive Compulsive Drinking Scale (OCDS)
- General Health Questionnaire (GHQ-12)

TOOLS

1. Socio- demographic Proforma

Information was collected through pre-designed, semi structured proforma for each patient in order to collect information of each participant. The socio- demographic details included name, age, sex, marital status, religion, education, occupation, socio-economic status, presenting complaints, past history of alcohol/ drug abuse and psychiatric illness.

2. Severity of Alcohol Dependence Questionnaire (SADQ-C)-

The questionnaire (SADQ) is widely used to measure the severity of alcohol dependence. It was designed in a hospital named Maudsley Hospital located in London in 1970's. The tool was developed by Stockwell et al. (1979) [120] where the researchers conducted a study on a group of alcoholics that were under treatment from this hospital. A total of 104 subjects were included in the study in which 80 were male subjects and 24 were female subjects. The SADQ-C is the latest version of SADQ, which consists of a total of twenty items. The later was designed on the work postulated by Edwards and Gross (1976) where the authors emphasised that alcohol dependence consists of a group of symptoms which are anyhow associated to a syndrome, where the central element is the desire or drive to have alcohol. This drive further results into alcohol consuming behaviour. The alcohol indulgent behaviour is an attempt to get rid of or avoid the withdrawal symptoms.

The original version had five sub-parts namely; (1) physical withdrawal symptoms, (2) affective symptoms of withdrawal, (3) craving and

withdrawal-relief drinking, (4) typical daily consumption and (5) reinstatement of withdrawal symptoms after a period of abstinence.

The SADQ and SADQ-C are commonly used to measure the degree of severity of alcohol dependence with good reliability and validity (Davidson, 1986) [121]. A study on 52 participants with alcohol dependence reported high correlation between SADQ and SADQ-C (r=0.98). The Cronbach's Alpha of 0.98 depicted a high internal reliability.

The SADQ-C is a self-report measure that takes about five to ten minutes to administer. The 20 items are responded from never (0), sometimes (1), often (2) to nearly always. A score below 31 suggests mild alcohol dependence in an individual. A score between 16 to 30 indicates moderate alcohol dependence and the score of 31 and more than 31 shows that the individual has severe alcohol dependence.

3. The Emotion Regulation Questionnaire (ERQ)

The questionnaire was developed by Gross & John (2003) [122] which assesses the use of two emotion regulation strategies frequently used by the respondents. It consists of 10 items that focus of CR and ES. The former comprises of 6 items and later of 4 items. The CR refers to the efforts made by an individual in which a new meaning or new perspective is given to a situation in order to deal with the situation that evokes emotional arousal in an individual. By the use of CR, the meaning attached to the emotional situation alters therefore, leading to change in emotional response.

Whereas, ES refers to the efforts made by an individual to suppress or hide their emotions which further, hinders an individual to express themselves freely. The CR is regarded as an effective way and an adaptive strategy to deal with emotions and emotion provoking situations. On the other hand, ES is considered as a maladaptive strategy which has been closely associated with stress, emotional problems, health issues and psychopathology. The items are rated on a 7-point Likert scale marked from strongly disagree (01) to strongly

agree (07). It is a self-report measure that requires 5 to 10 minutes to administer and complete. According to the authors the questionnaire has good psychometric properties with the Cronbach's alpha of 0.79 CR and 0.73 ES.

4. The Cognitive Emotion Regulation Questionnaire (CERQ)

The CERQ is a self-report measure, consisting of 36 items. It was developed by Garnefski et al. (2001) [123] The questionnaire measures the different cognitive emotion strategies used by different individuals in order to deal with stressful and emotion evoking situations. The CERQ can be administered from the age range 12 years and above. There are total nine emotional regulation strategies in CERQ including both adaptive and maladaptive. There are four items per emotional strategy. The adaptive strategies are acceptance, positive refocusing, positive reappraisal, refocus on planning and putting into perspective. The maladaptive strategies include self- blame, rumination, catastrophizing and other- blame. The responses are marked on a 5-point Likert scale ranging from almost never (01) to almost always (05). The scores on each subscale vary from 04 (minimum) to 20 (maximum score). Higher the subscale score, more frequently is the cognitive strategy used. In the present study two cognitive emotion strategies were chosen from the complete questionnaire; acceptance and rumination. Acceptance refers to resigning oneself to the events that have happened or might happen in future. Rumination refers to the thinking about the negative events and their consequences. The studies support the evidence for good psychometric properties of CERQ, where the Cronbach's alpha coefficients was .70. The CERQ also has good factorial validity, discriminative properties and construct validity (Garnefski et al., 2002).[124]

5. The Brief Experiential Avoidance Questionnaire (BEAQ)

The BEAQ is a self-report consisting of 15 items which measures experiential avoidance. It was developed by Gamez et al. (2014) [125] The experiential avoidance refers to an individual's ability to avoid the

experience of uncomfortable emotions and tendency to avoid such stressful situations, emotions and behaviour. The BEAQ is a briefer measure of experiential avoidance and has been derived from the 62 item Multidimensional experiential avoidance questionnaire (MEAQ). The MEAQ measures experiential avoidance on 6 subscales, namely; behavioural avoidance, distress aversion, procrastination, distraction and suppression, repression/ denial and distress endurance. The BEAQ was developed by choosing items from the six subscales of MEAQ. The items were selected with respect to three different samples i.e., undergraduates, psychiatric outpatients and community adults. Further, two more samples were also included. The BEAQ depicted a good internal consistency and also showed a strong convergence with all six subscales of MEAQ. The responses are marked on a 6-point Likert scale ranging from strongly disagree (01) to strongly agree (06). Higher the score higher is the EA. The BEAQ has good psychometric properties with reliability of .82 with respect to pre- test data (Cronbach's alpha) and .71 on post test data. In comparison to MEAQ, BEAQ is not further divided into subscales and the scores are obtained on the total construct of EA.

6. Toronto Alexithymia Scale (TAS-20)

The TAS-20 is a self-report measure that measures alexithymia.It was developed by Bagby, Parker and Taylor (1994) [126] Individuals with alexithymia tend to have problem in identifying as well as describing their feelings and emotions, along with ability to minimise their emotional experience and pay more attention on external events. The TAS-20 has three subscales: Difficulty Describing Feelings (DDF), Difficulty Identifying Feelings (DIF) and Externally Oriented Thinking (EOT). There are total 5 items that measure DDF: item 2, 4, 11, 12 and 17. A total of 7 items measure DIF: items 1, 3, 6, 7, 9, 13 and 14. The other 8 items measure EOT: items 5, 8, 10, 15, 16, 18, 19 and 20.

The items are rated on a 5-point Likert scale ranging from strongly disagree (01) to strongly agree (05). Item number 4, 5, 10, 18 and 19

are scored reversely. A sum of all the items provides a total score on the alexithymia construct, whereas, individual subscale scores can be inferred from the sum of a subscale score. The maximum score that can be obtained on TAS-20 is 100, where higher scores suggest higher alexithymia in an individual. A total score of less than 51 indicates non-alexithymia, a score of 61 or more suggests alexithymia and scores between 52 and 60 indicates possible alexithymia. The scale has a good internal consistency where Cronbach's alpha = .81 and test-retest reliability =.77. The studies that have used TAS-20 in their research depicts a good convergent and concurrent validity. The 3-factor structure suggests that is theoretically congruent with the alexithymia construct. The scale has been well replicated in clinical as well as general population.

7. Obsessive Compulsive Drinking Scale (OCDS)

The OCDS is a 14 item self-report scale that measures obsessive thoughts and compulsive drinking in individuals with alcohol use. It was developed by Anton et al. (1995) [127]. It has two subscales: obsessive subscale and compulsive subscale. Items 1 to 6 constitutes the former and items 7 to 14 constitute compulsive subscale. The items are scored from 0 to 4. The central element to cravings is the obsessive thoughts and compulsive drinking behaviour. The OCDS is a modification of Yale Brown Obsessive Compulsive Scale- heavy drinkers (YBOCS-hd). The correlation between the two measures is 0.83. The test and retest correlations for OCDS was .96 with test-retest correlations between the subscales of OCDS as .94 (obsessive subscale) and .86 (compulsive subscale). The internal consistency of OCDS items was .86 (Anton et al., 1995).[127]

8. The General Health Questionnaire - 12 (GHQ – 12)

The General Health Questionnair-12 abbreviated at GHQ-12 was formed by D. Goldberg and P. Williams in 1988 [128]. It was developed as self-administered test for detection of any psychiatric morbidity in general outpatients. It is mainly focused on depressed, anxiety, social life related problems and somatic related complaints. It consists of 12

items which helps in identification of psychiatric morbidity of the patients. It is considered as simple interpretation technique as scores obtained from GHQ-12 can be easily interpreted through measure of severity, prevalence and indicator of psychiatric disorder in patients.

PROCEDURE

The present study was conducted on a total of 200 participants; amongst which 100 were male patients with AD. The patients with AD were chosen from the department of Psychiatry (inpatient and outpatient). The 100 patients were further divided into moderate and severe group on the basis of the severity of their AD. The research also included a control group (NAD) of 100 male participants. The subject for the control group were selected from the general population. A written consent was duly signed by all the participants. The participants were well informed about the confidentiality of their information.

After the written consent was taken from the participants, basic socio demographic information was collected through a semi structured pro forma. The socio demographic proforma included the name, age, sex, marital status, religion, education, occupation, socio-economic status, presenting complaints, past history of alcohol/ drug abuse and psychiatric illness.

The patients with AD were assessed on the Severity of alcohol dependence questionnaire (SADQ-C). The questionnaire was administered as a screening tool in order to differentiate the patients with AD on the basis of their degree of severity. The participants were directed to answer the questions related to their heavy drinking in the period of last 6 months. The research included only moderate and severe level of AD patients.

The ERQ was administered to both the alcohol dependent and NAD group. ERQ was administered in order to assess the emotion regulation strategies; CR and ES.

After the assessment on ERQ both the AD and NAD group were assessed on CERQ. This questionnaire was administered to assess

emotion regulation strategies that constituted the cognitive construct. The present study included the items of A subscale and R subscale.

The study group and the control group were further assessed on 15 items BEAQ, in order to assess the two groups on the EA emotion regulation strategy.

TAS-20 was administered to the study and the control group in attempt to assess the participants on alexithymia construct.

Further, OCDS was administered to the study group only. The OCDS was used to assess the AD patients for alcohol cravings. The scale includes questions about thoughts regarding alcohol intake, alcohol drinking and the alcohol drinking behaviour.

Lastly, the healthy control group was assessed on GHQ-12 in order to screen the participants and detect the risk of developing psychiatric difficulties.

SIGNIFICANCE OF THE STUDY

The present study explored the relationship of different emotional regulation strategies on alexithymia and carvings in males with AD. We also studied the emotional regulation strategies and alexithymia in the study group, for which the healthy control males were selected from general population. Further, the relationship between the variables was studied with respect to severity of AD. Emotional regulation has been associated with different mental health problems. Difficulty in emotional regulation results into mental disorders like anxiety, depression and alcohol use disorders. Alexithymia refers to the difficulty in understanding and expressing one's emotions. Craving is a strong desire or need for alcohol. Craving has a vital role in alcohol dependence. Dysregulation of emotions has been associated with alexithymia. Recently, there has been an increased interest in understanding the role of cognitive emotional strategies like R, A, problem solving and positive refocusing in psychopathology. Our study aims to investigate both the adaptive (CR and A) and maladaptive strategies (ES, R and EA) with respect to alexithymia and craving. If

attempts are made to strengthen the adaptive strategies and reduce the maladaptive strategies that will help in reduction of alexithymia and craving in AD. An understanding of the relationship between these three variables will help in planning treatment for individuals with AD.

Research Gaps

There have been studies in the past that have made efforts to study the emotional regulation strategies, alexithymia and craving in AD, however there is dearth of research on this topic on the basis of severity. Further, most of the studies have been done on CR and ES, whereas, only a few studies have explored R and A as cognitive emotional regulation strategies in alcoholics. Hence, we planned this study to overcome these research gaps.

STATISTICAL ANALYSIS:

Data was described in terms of mean ± standard deviation (±SD), frequencies (number of cases) as appropriate. Mean, Standard deviation, t test and Pearson Correlation were computed for different variables. A probability value (p- value) less than 0.05 was considered statistically significant. All statistical calculations were done using SPSS (Statistical Package for the Social Science)- SPSS 21 version statistical program for Microsoft windows.

OBSERVATIONS AND RESULTS

Table1: Distribution of participants with AD and NAD in terms of age groups.

	Alcohol		Non-Alcohol		t-value	p-value
	Mean	SD	Mean	SD		
AGE	39.42	9.47	35.01	6.21	3.892	**0.000**

Figure 1: Distribution of participants with AD and NAD in terms of age groups.

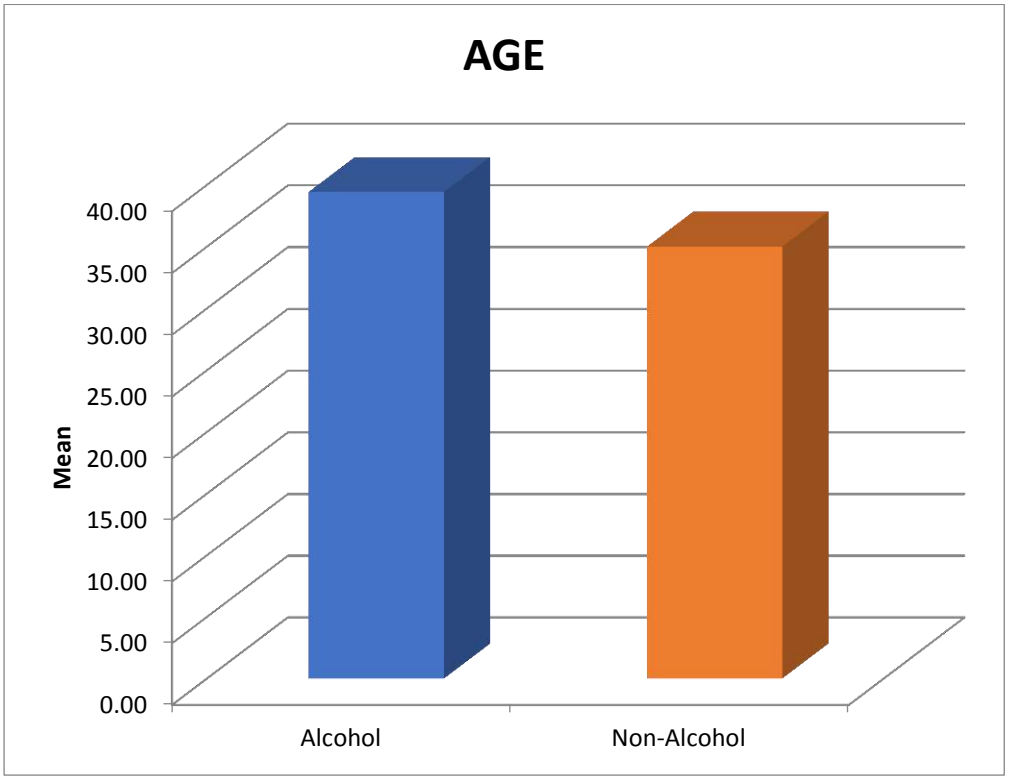


Table 2: Distribution of participants with AD and NAD on the basis of qualification.

	Alcohol		Non-Alcohol		Chi-square value	p-value
	No. of cases	Percentage	No. of cases	Percentage		
Below 10th	15	15%	12	12%	69.689	**0.0001**
10th-12th	19	19%	22	22%		
UG	35	35%	28	28%		
PG	27	27%	43	43%		
Above PG	4	4%	5	5%		

Figure 2: Distribution of participants with alcohol dependence on the basis of qualification.

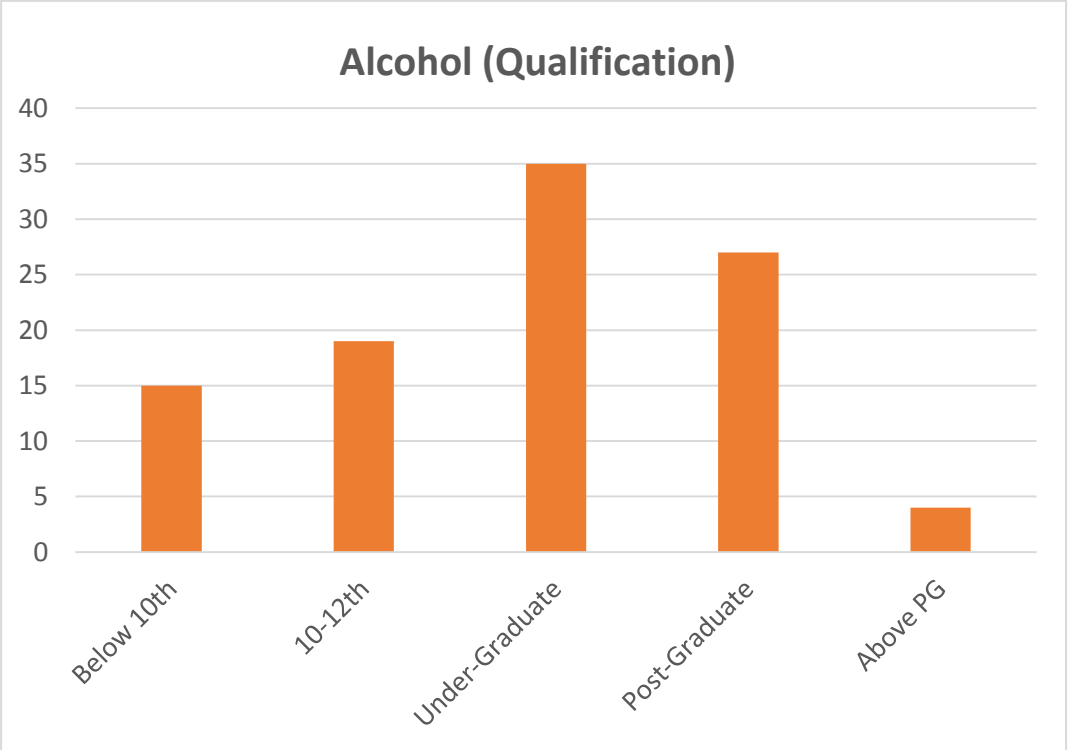


Figure 3: Distribution of participants with NAD on the basis of qualification.

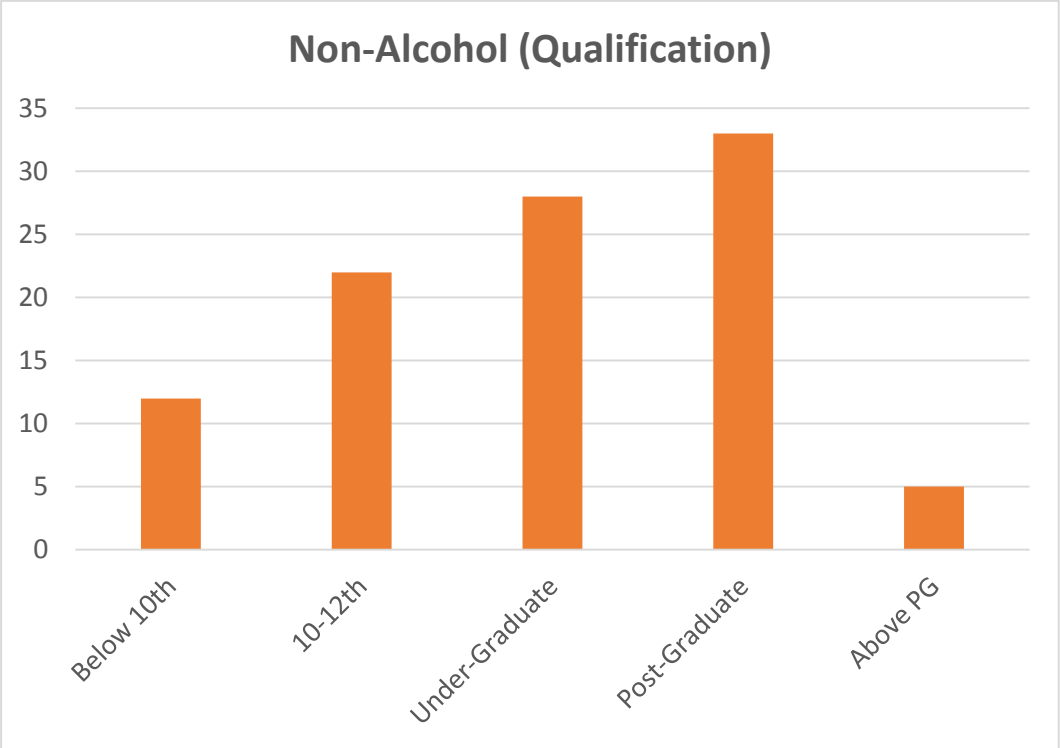


Table 3: Distribution of participants with AD and NAD in terms of locality/region.

	Severe		Moderate		Chi-square value	p-value
	No. of cases	Percentage	No. of cases	Percentage		
Rural	25	50%	28	56%	0.361	0.548
Urban	25	50%	22	44%		

Figure 4: Distribution of participants with AD and NAD in terms of locality/region.

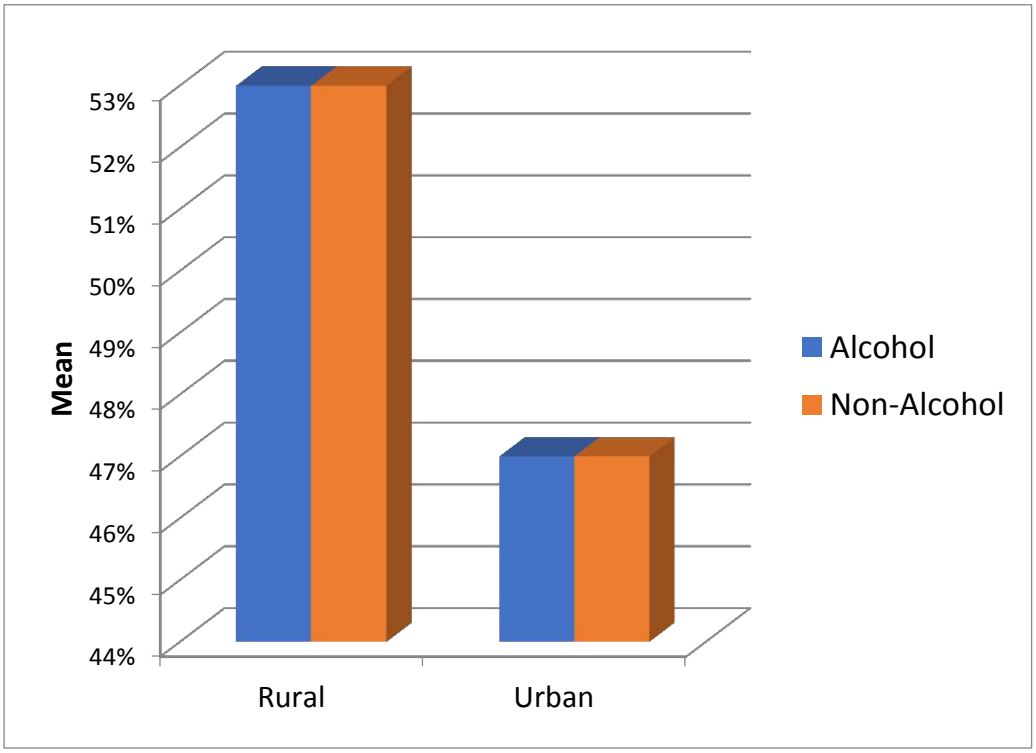


Table 4: Comparison between AD and NAD participants (N= 100 each) on the basis of the CR and ES

		Alcohol Dependence		Non-Alcohol Dependence		t-value	p-value
	Total (N)	Mean	SD	Mean	SD		
CR	100	16.58	4.91	22.21	4.82	-8.188	**0.000**
ES	100	19.06	3.51	17.42	4.09	3.045	**0.003**

Figure 5: Comparison between AD and NAD participants on the basis of the CR and ES

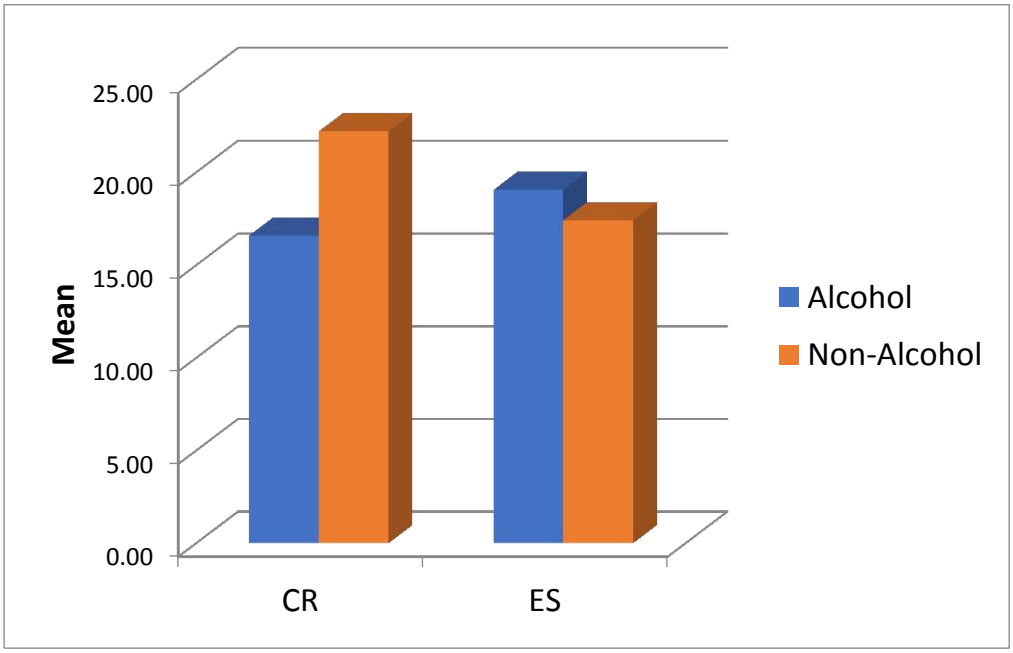


Table 5: Comparison between AD and NAD (N= 100 each) on the basis of A and R

		Alcohol		Non-Alcohol		t-value	p-value
	Total (N)	Mean	SD	Mean	SD		
A	100	12.22	3.42	13.09	3.06	-1.897	0.059
R	100	15.33	3.22	10.85	1.91	11.961	**0.000**

Figure 6: Comparison between AD and NAD participants on the basis of A and R

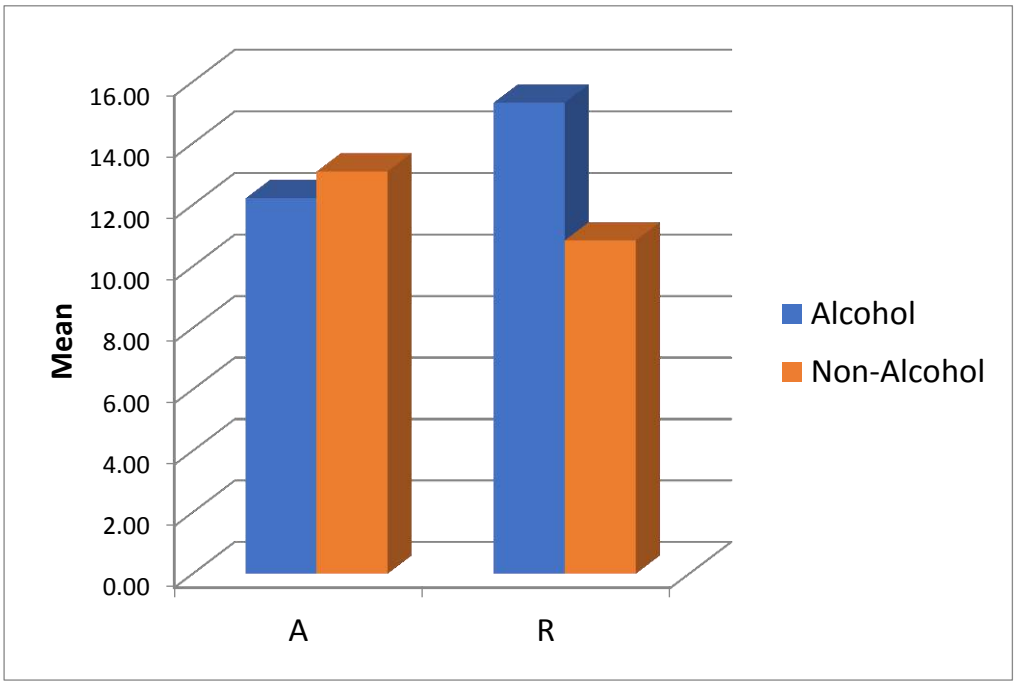


Table 6: Comparison between AD and NAD participants (N= 100 each) on the basis of EA

		Alcohol		Non-Alcohol		t-value	p-value
	Total (N)	Mean	SD	Mean	SD		
EA	100	60.97	11.40	53.78	10.56	4.628	**0.000**

Figure 7: Comparison between AD and NAD participants on the basis of EA

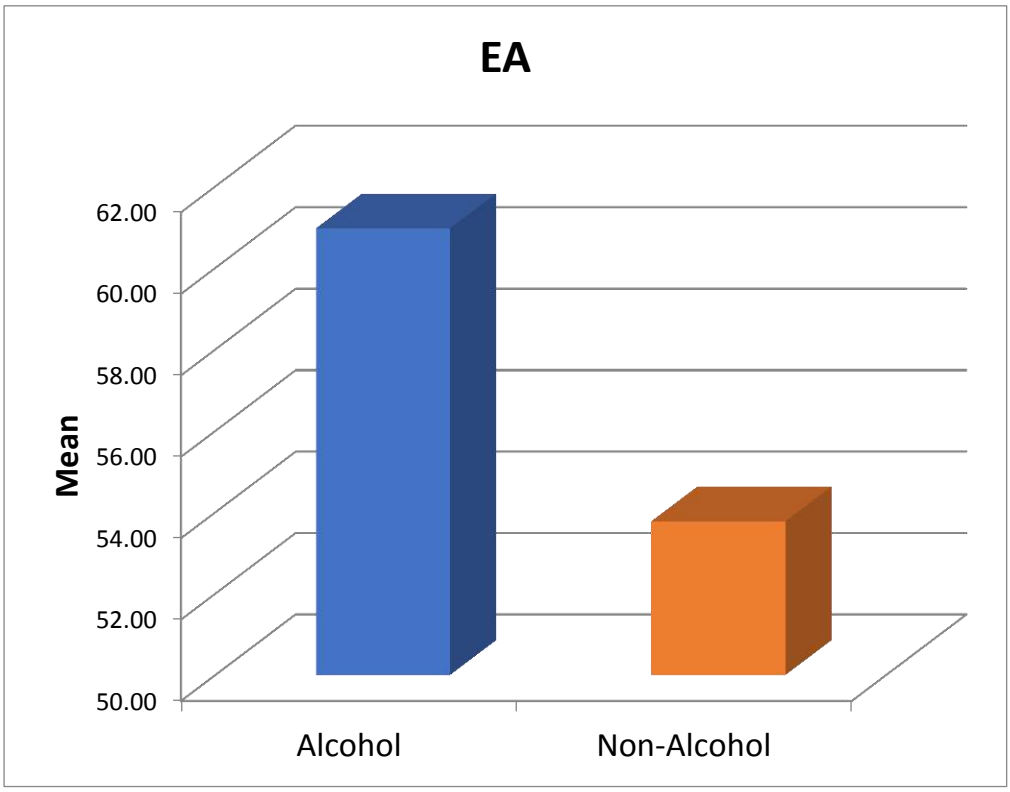


Table 7: Comparison between AD and NAD (N= 100 each) on the basis of DIF, DDF, EOT and TAS-20 Total

	Alcohol		Non-Alcohol			
	Mean	**SD**	**Mean**	**SD**	**t**	**p-value**
DIF	21.49	4.27	20.00	4.99	2.269	**0.024**
DDF	20.64	2.95	19.17	3.63	3.146	**0.002**
EOT	25.67	4.19	23.61	3.30	3.865	**0.000**
TAS-20 Total	67.80	6.46	62.78	7.26	5.167	**0.000**

Figure 8: Comparison between AD and NAD participants on the basis of DIF, DDF, EOT and TAS-20 Total

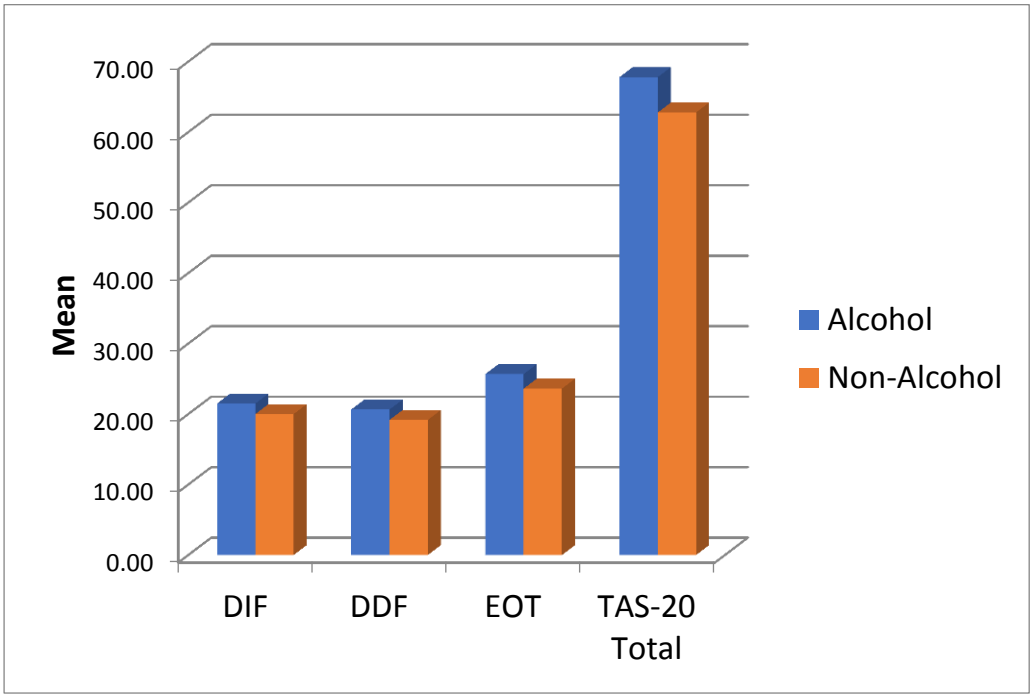


Table 8: Comparison between participants with severe AD and moderate AD (N= 50 each) on the basis of CR and ES

Alcohol		Severe			Moderate		t-value	p-value
	Total (N)	Mean	SD	Total (N)	Mean	SD		
CR	50	15.88	5.43	50	17.28	4.26	-1.434	0.155
ES	50	19.74	4.12	50	18.38	2.63	1.967	0.052

Figure 9: Comparison between participants with severe AD and moderate AD on the basis of CR and ES

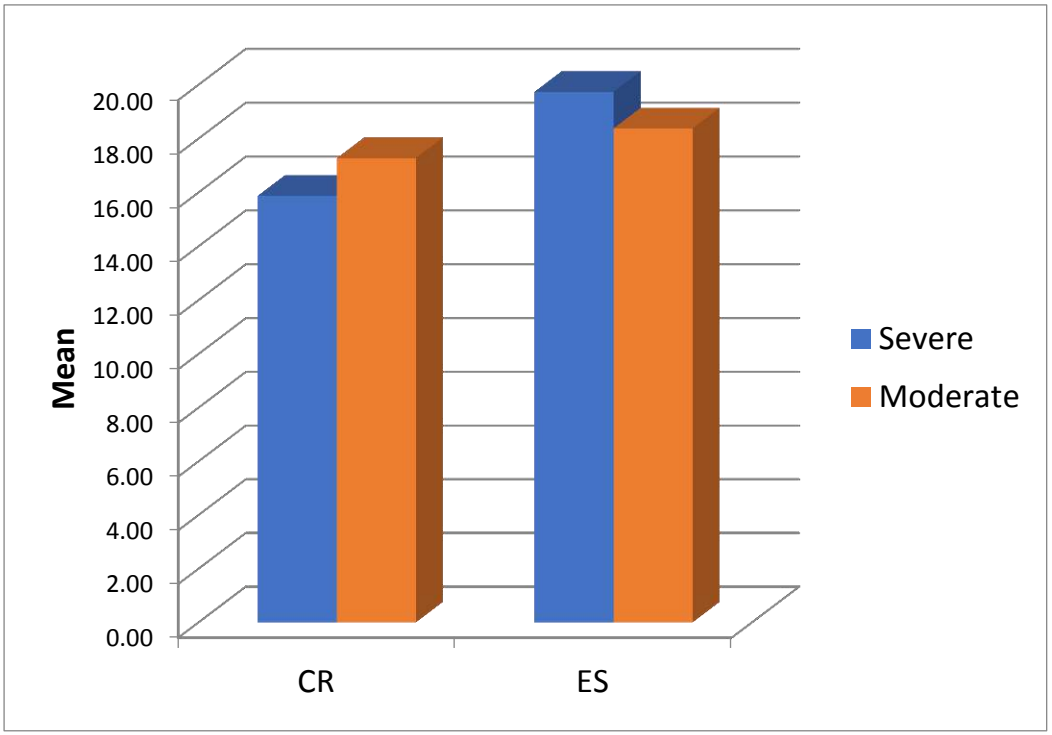


Table 9: Comparison between participants with severe AD and moderate AD (N= 50 each) on the basis of A and R

Alcohol		Severe			Moderate		t-value	p-value
	Total (N)	Mean	SD	Total (N)	Mean	SD		
A	50	10.66	2.76	50	13.78	3.33	-5.103	**0.000**
R	50	16.10	3.22	50	14.56	3.07	2.449	**0.016**

Figure 10: Comparison between participants with severe AD and moderate AD on the basis of A and R.

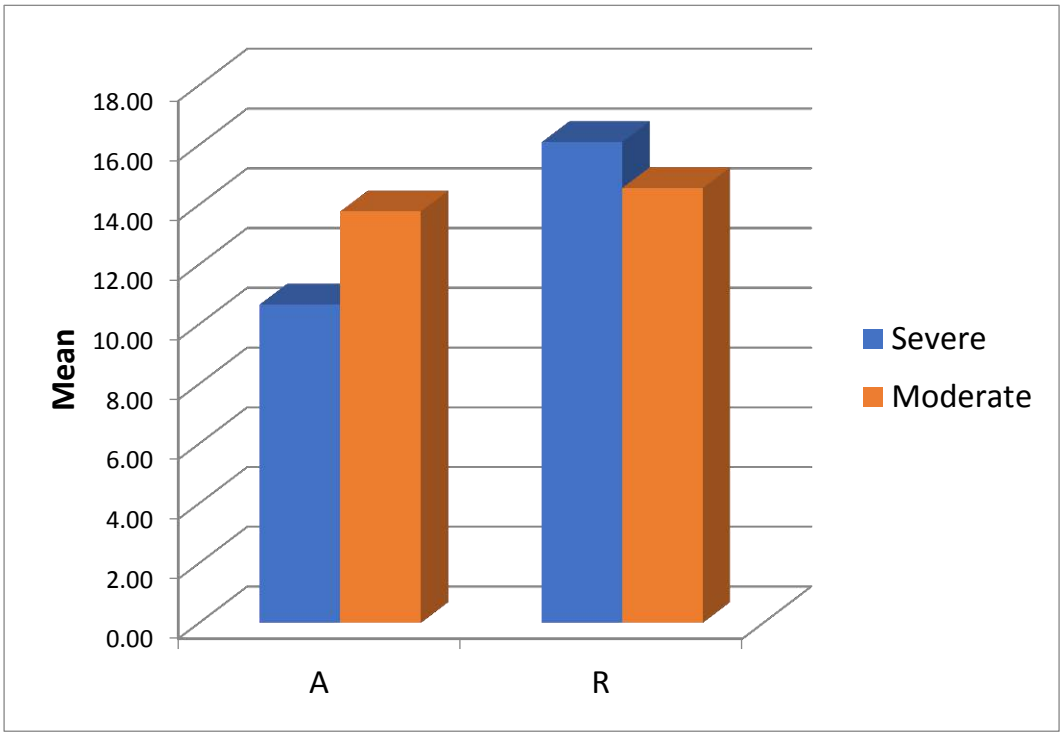


Table 10: Comparison between participants with severe AD and moderate AD (N= 50 each) on the basis of EA

Alcohol		Severe			Moderate		t-value	p-value
	Total (N)	Mean	SD	Total (N)	Mean	SD		
EA	50	66.08	11.16	50	55.86	9.19	4.998	**0.000**

Figure 11: Comparison between participants with severe AD and moderate AD on the basis of EA

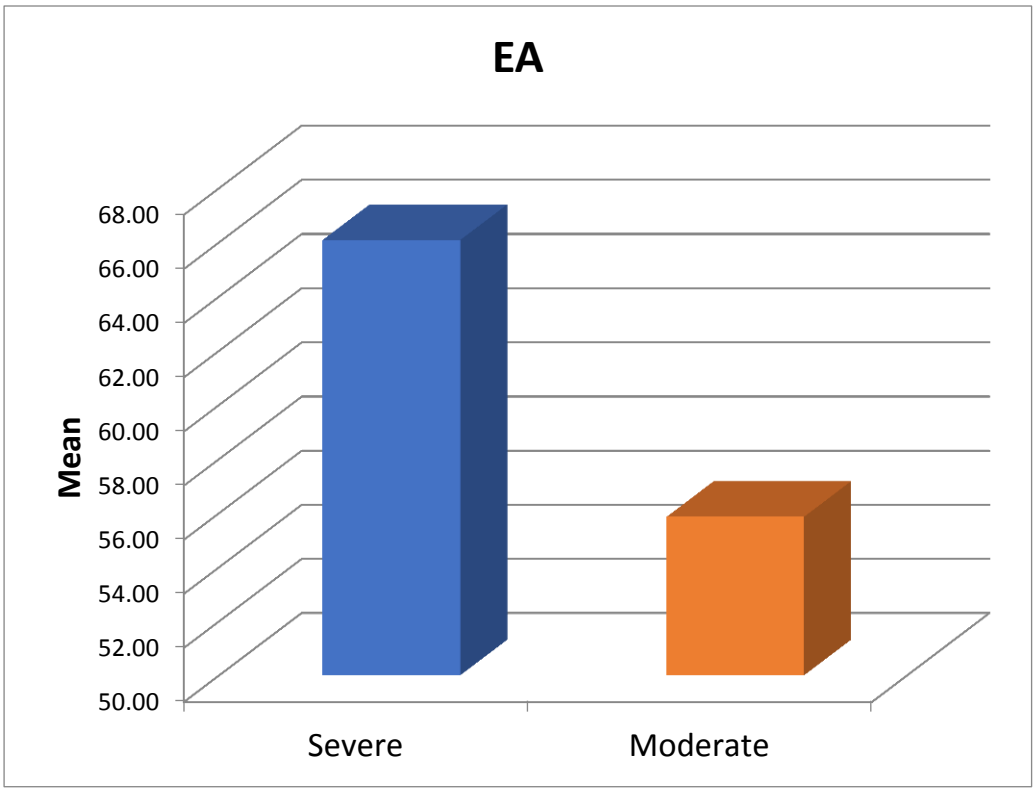


Table 11: Comparison between severe and moderate AD (N= 50 each) on the basis of DIF, DDF, EOT and TAS-20 Total

Alcohol		Severe			Moderate		t-value	p-value
	Total (N)	Mean	SD	Total (N)	Mean	SD		
DIF	50	22.34	5.05	50	20.64	3.13	2.023	**0.046**
DDF	50	21.78	2.85	50	19.50	2.60	4.180	**0.000**
EOT	50	26.74	4.81	50	24.60	3.14	2.632	**0.010**

Figure 12: Comparison between severe and moderate AD on the basis of DIF, DDF, EOT and TAS-20 Total

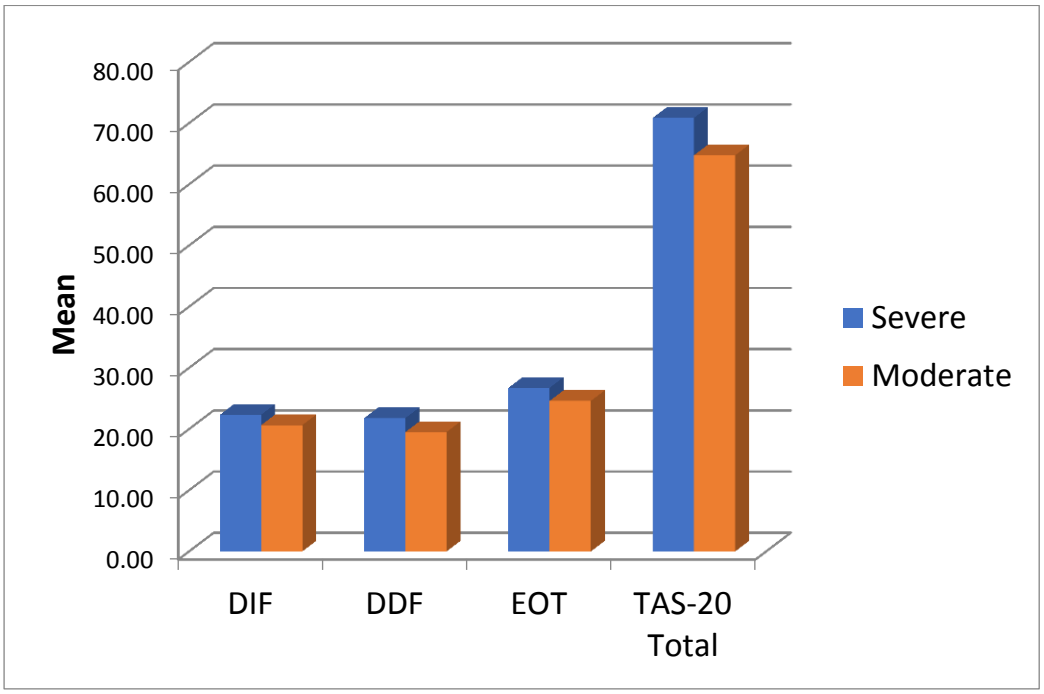


Table 12: Comparison between severe and moderate AD (N= 50 each) on the basis of OT, CD and OCDS Total

Alcohol		Severe			Moderate		t-value	p-value
	Total (N)	Mean	SD	Total (N)	Mean	SD		
OT	50	15.42	3.94	50	12.40	3.13	4.245	**0.000**
CD	50	18.68	5.12	50	14.20	4.64	4.585	**0.000**
OCDS	50	34.10	8.58	50	26.60	6.91	4.813	**0.000**

Figure 13: Comparison between severe and moderate AD on the basis of OT, CD and OCDS Total.

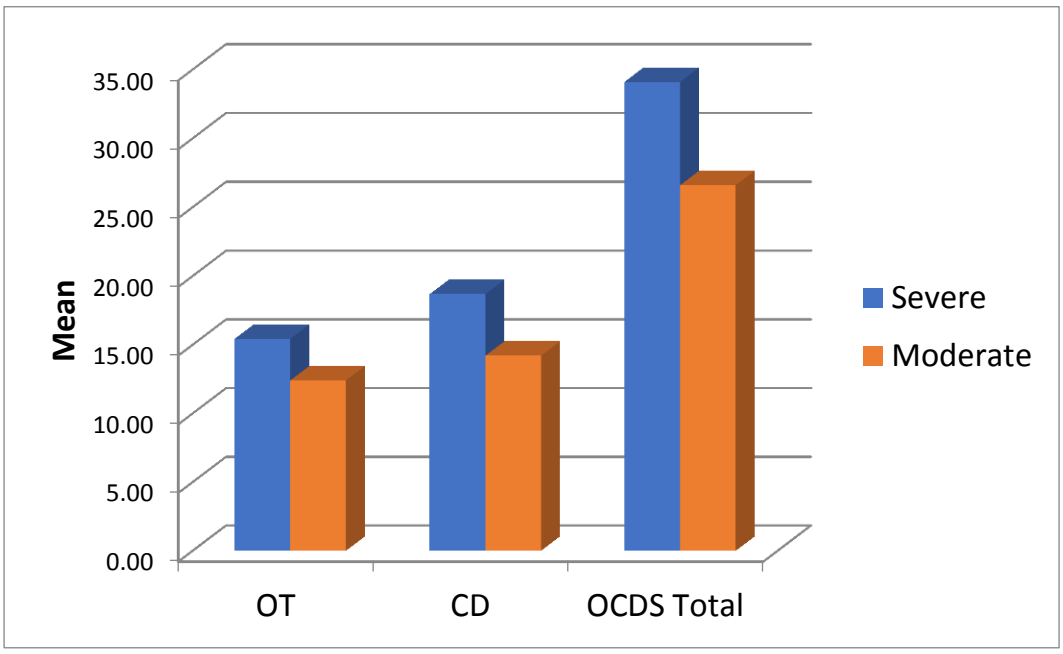


Table 13: Correlation between CR and ES with OT, CD and OCDS Total in AD

Alcohol		OT	CD	OCDS Total
CR	Pearson Correlation	-0.123	-0.014	-0.064
	p-value	0.223	0.887	0.528
ES	Pearson Correlation	0.195	.259	.248
	p-value	0.052	**0.009**	**0.013**

Figure 14: Correlation between CR with OT, CD and OCDS Total in AD

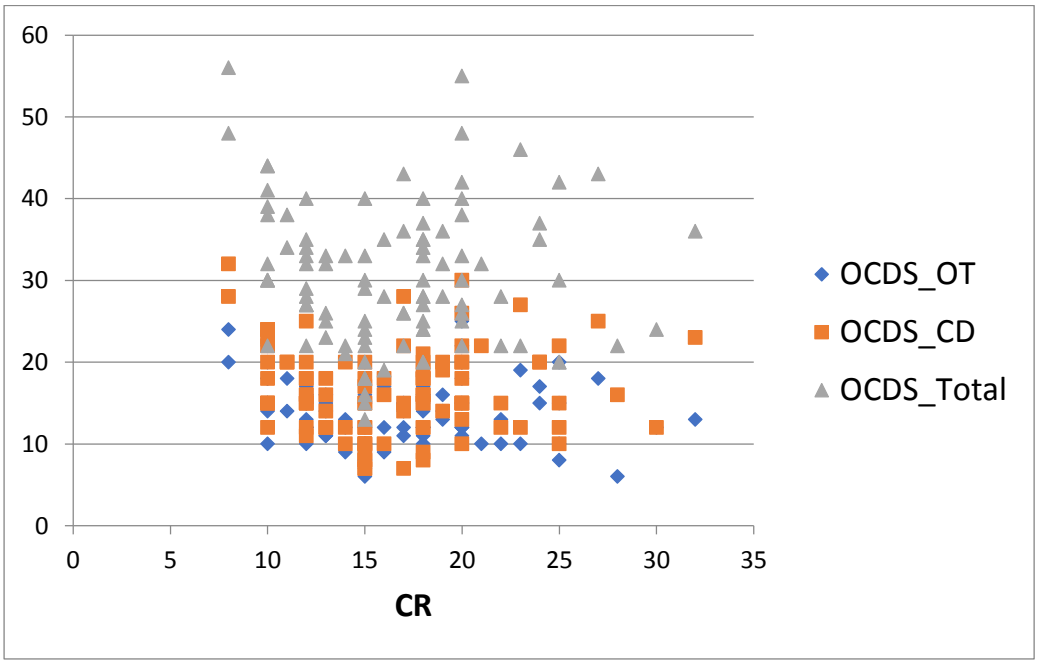


Figure 15: Correlation between ES with OT, CD and OCDS Total in AD

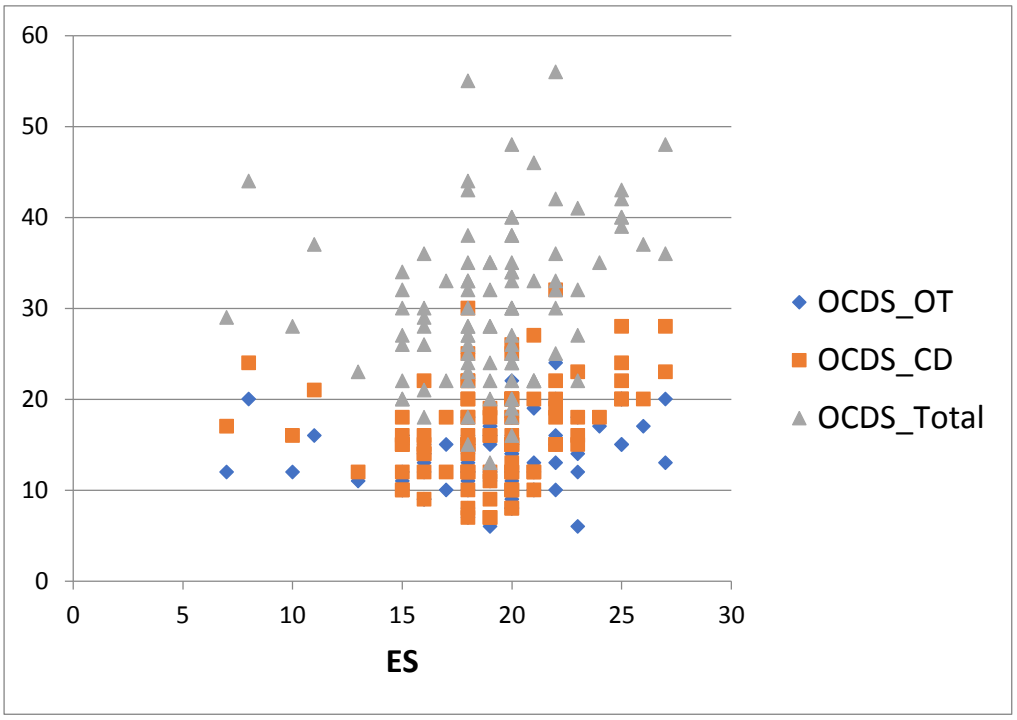


Table 14: Correlation between CR and ES with DIF, DDF, EOT and TAS-20 Total in AD

Alcohol		DIF	DDF	EOT	TAS-20_Total
CR	Pearson Correlation	-0.013	-0.193	-0.152	-0.195
	p-value	0.900	0.054	0.131	0.052
ES	Pearson Correlation	.442	0.052	0.047	.346
	p-value	**0.000**	0.608	0.644	**0.000**

Figure 16: Correlation between CR and DIF, DDF, EOT and TAS-20 Total

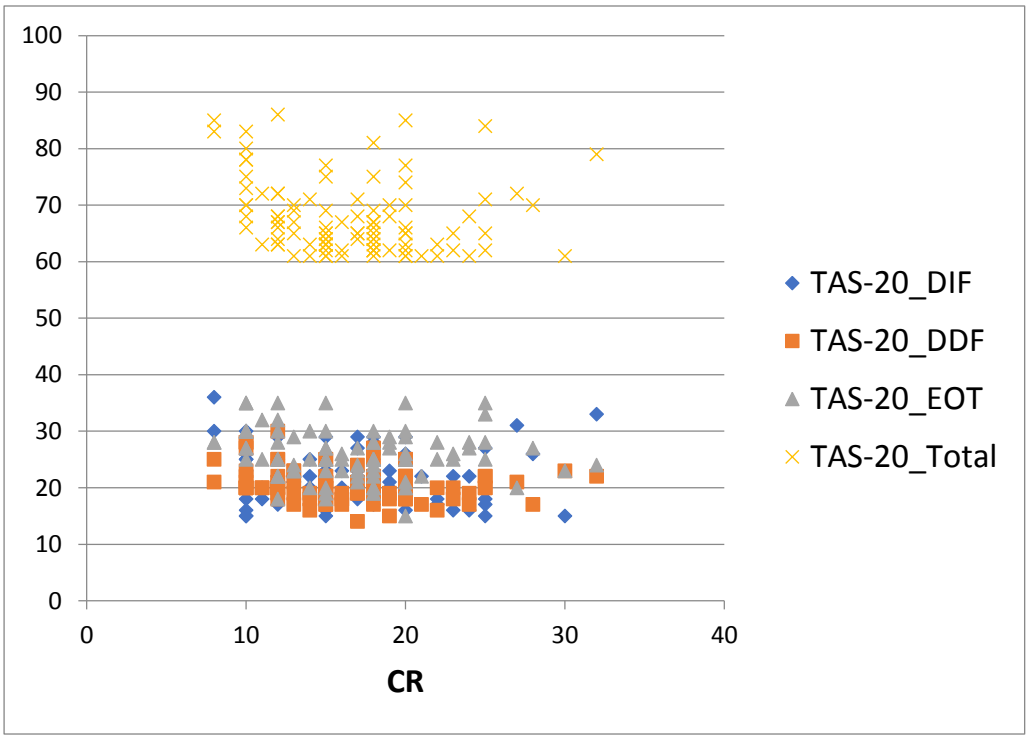


Figure 17: Correlation between ES with DIF, DDF, EOT and TAS-20 Total

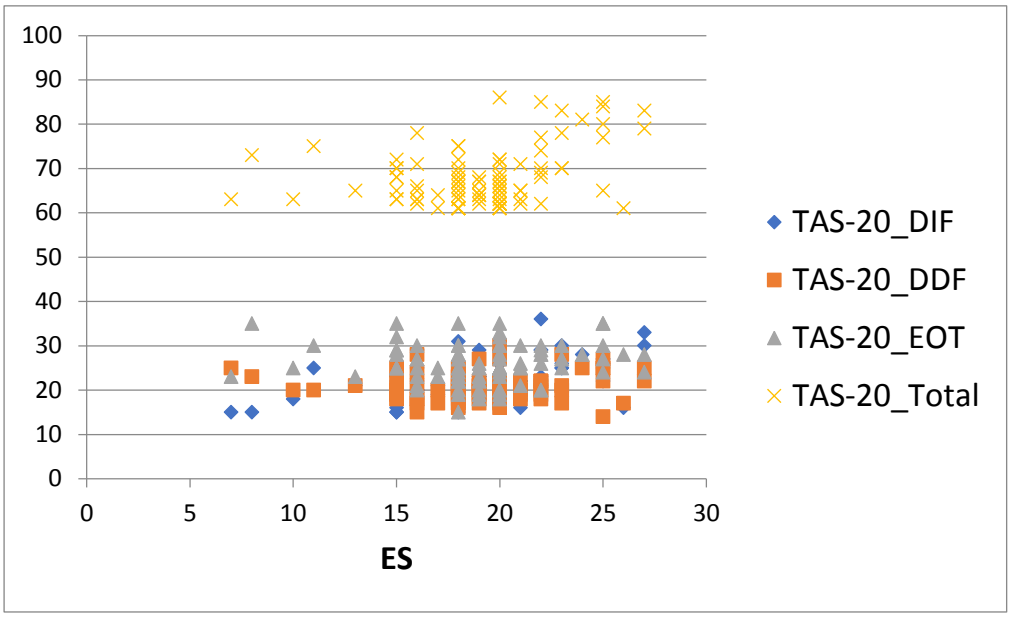


Table15: Correlation between A and R with OT, CD and OCDS Total in AD

Alcohol		OT	CD	OCDS Total
A	Pearson Correlation	-0.115	-.220	-0.188
	p-value	0.255	**0.028**	0.061
R	Pearson Correlation	.273	.256	.281
	p-value	**0.006**	**0.010**	**0.005**

Figure 18: Correlation between A and R with OT, CD and OCDS Total in AD

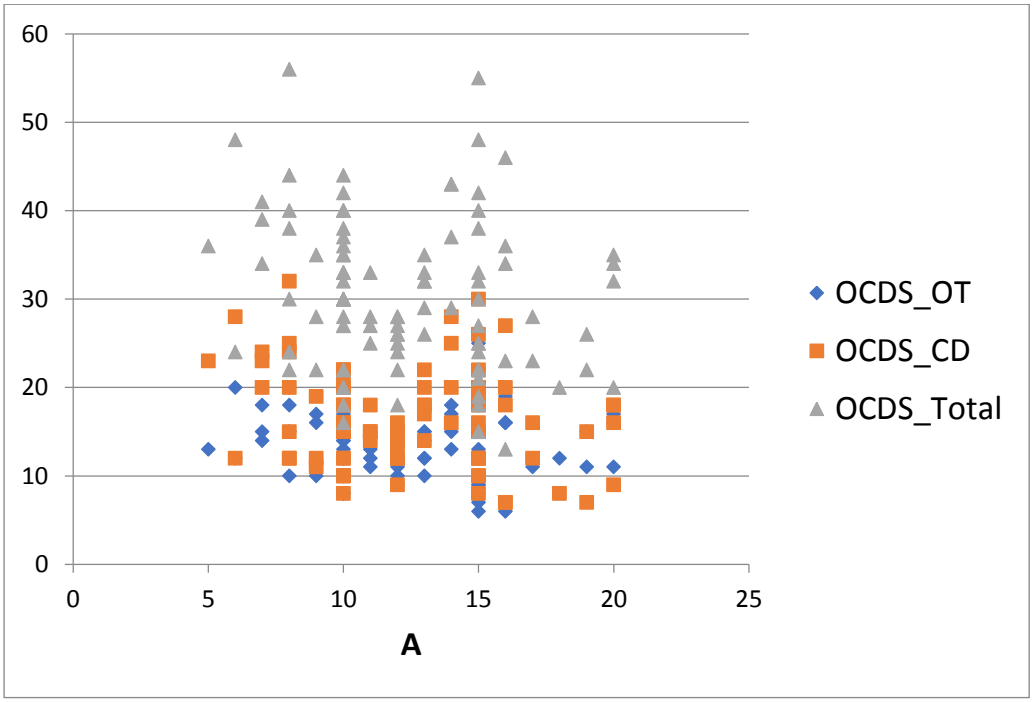


Figure 19: Correlation between R with OT, CD and OCDS Total in AD

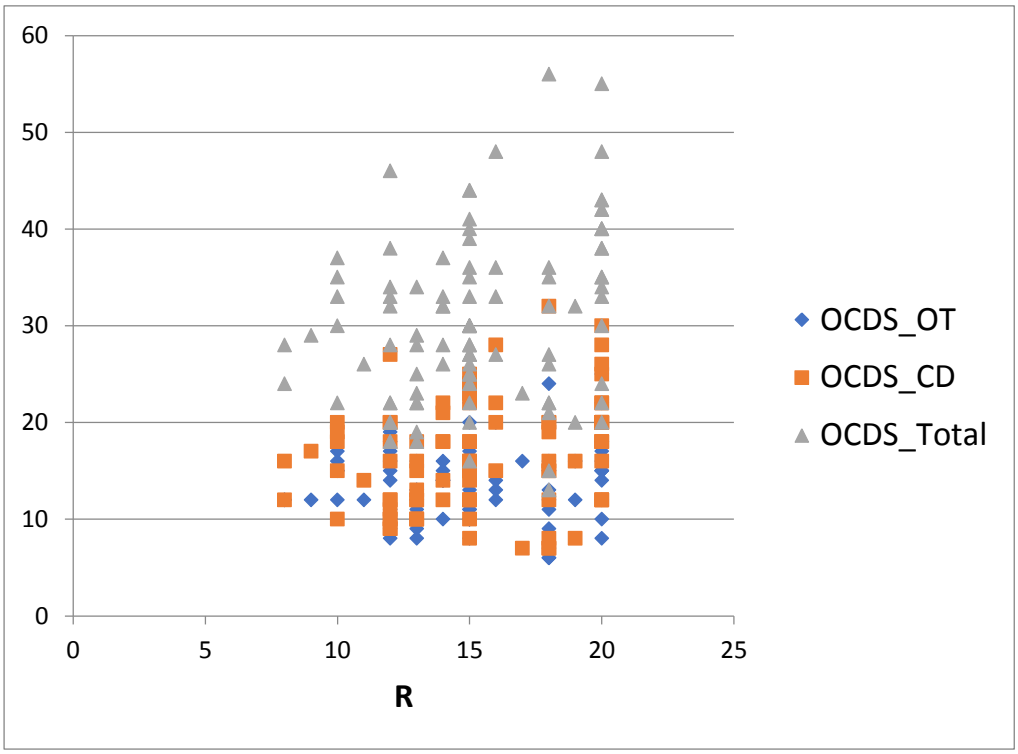


Table 16: Correlation between A and R with DIF, DDF, EOT and TAS-20 Total in AD

Alcohol		DIF	DDF	EOT	TAS-20_Total
A	Pearson Correlation	-0.046	-0.151	-.238	-.254
	p-value	0.653	0.133	**0.017**	**0.011**
R	Pearson Correlation	.374	0.104	0.114	.368
	p-value	**0.000**	0.302	0.260	**0.000**

Figure 20: Correlation between A with DIF, DDF, EOT and TAS-20 Total in AD

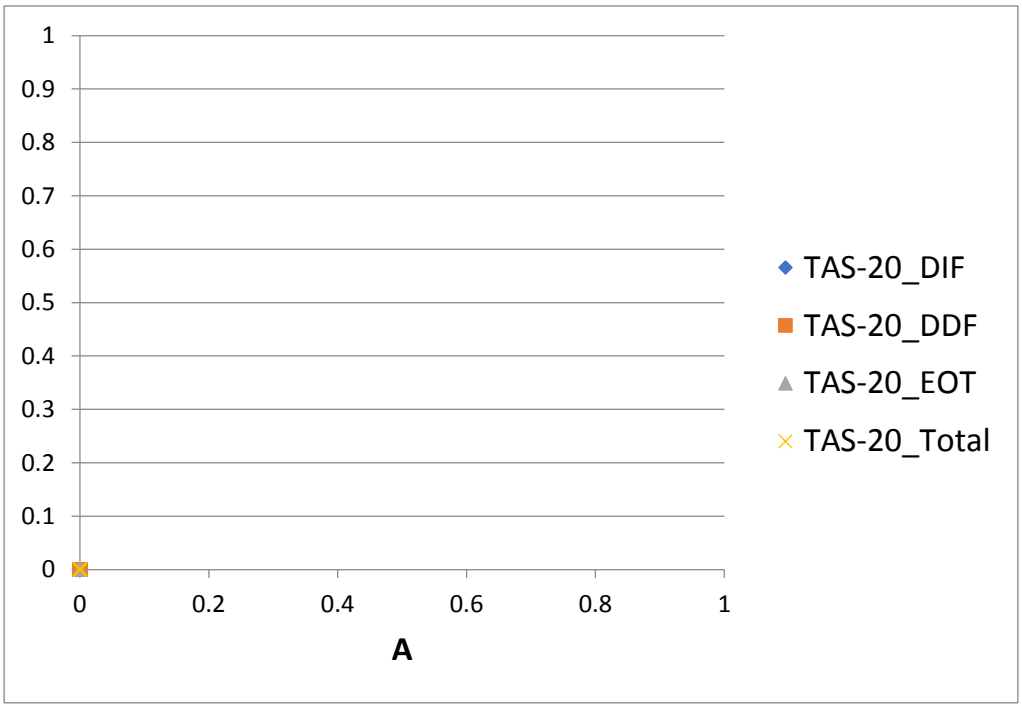


Figure 21: Correlation between R with DIF, DDF, EOT and TAS-20 Total in AD

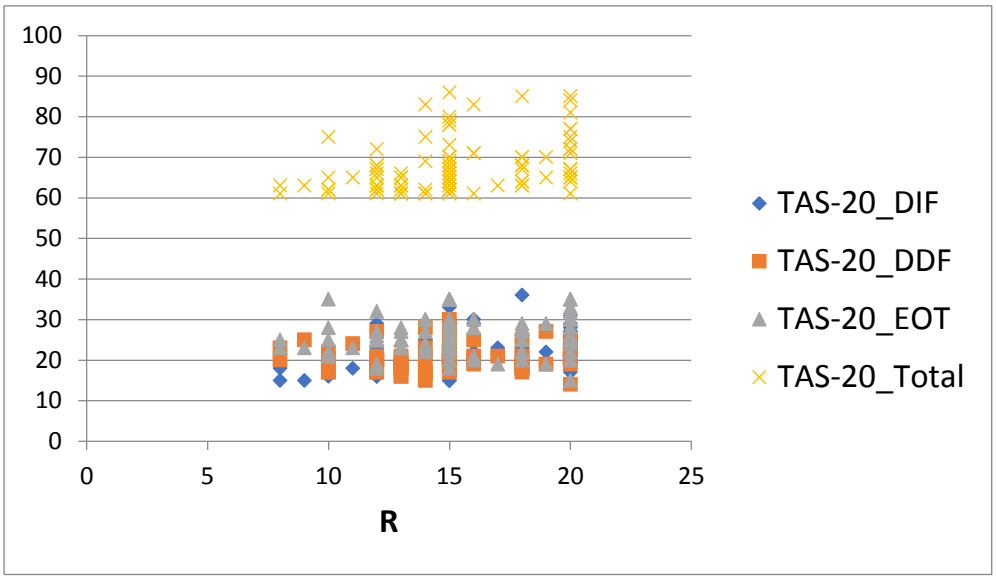


Table17: Correlation between EA with OT, CD and OCDS Total in AD

Alcohol		OT	CD	OCDS Total
EA	Pearson Correlation	.383	.340	.382
	p-value	**0.000**	**0.001**	**0.000**

Figure 22: Correlation between EA with OT, CD and OCDS Total in AD

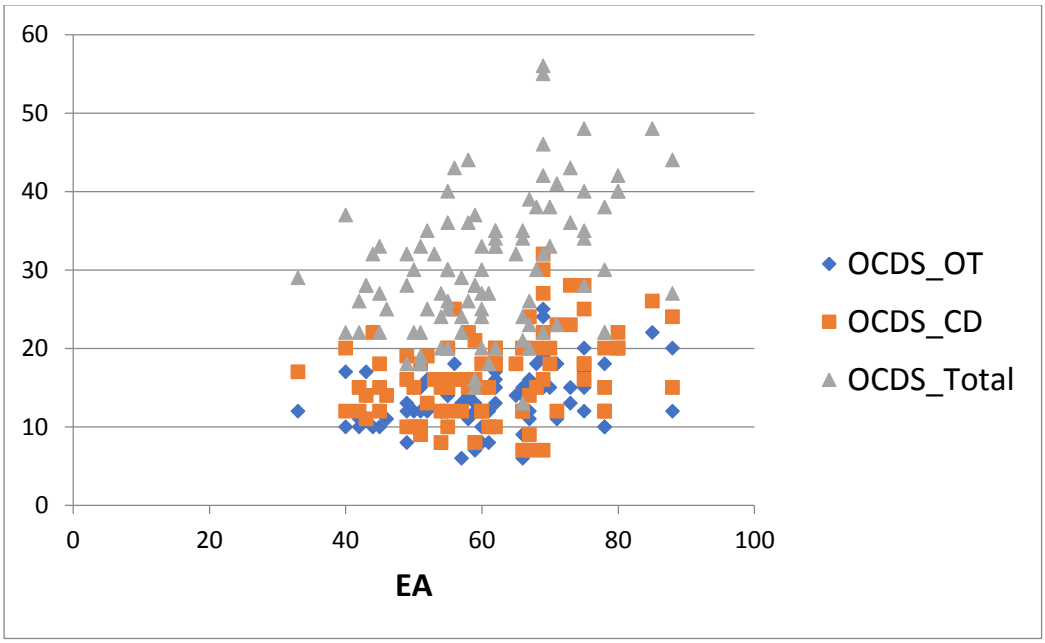


Table 18: Correlation between EA with DIF, DDF, EOT and TAS-20 Total in AD

Alcohol		DIF	DDF	EOT	TAS-20 Total
EA	Pearson Correlation	.273	.281	.278	.489
	p-value	**0.006**	**0.005**	**0.005**	**0.000**

Figure 23: Correlation between EA with DIF, DDF, EOT and TAS-20 Total in AD

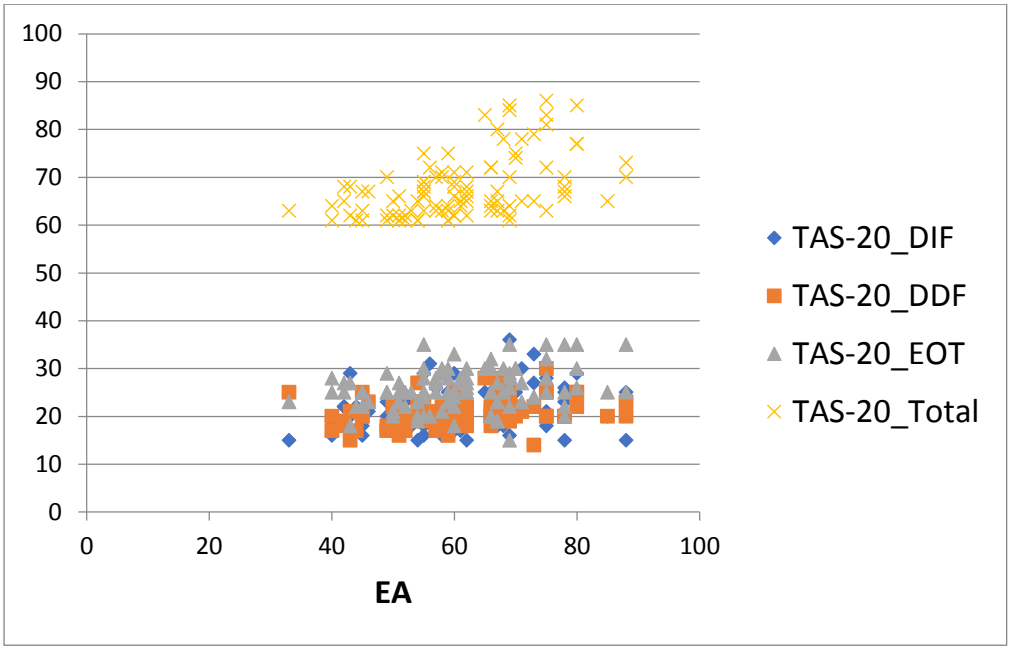


Table 19: Correlation between CR, ES, A, R and EA with DIF, DDF, EOT and TAS-20 Total in NAD

		DIF	DDF	EOT	TAS-20 Total
CR	Pearson Correlation	-0.030	0.015	0.088	0.027
	p-value	0.765	0.880	0.385	0.792
	N	100	100	100	100
ES	Pearson Correlation	-0.101	-0.012	0.128	-0.018
	p-value	0.315	0.908	0.206	0.862
	N	100	100	100	100
A	Pearson Correlation	-0.087	0.136	0.096	0.052
	p-value	0.391	0.176	0.344	0.608
	N	100	100	100	100
R	Pearson Correlation	-0.024	.217	-0.069	0.060
	p-value	0.810	**0.030**	0.497	0.551
	N	100	100	100	100
EA	Pearson Correlation	0.047	0.080	0.024	0.083
	p-value	0.644	0.431	0.811	0.412
	N	100	100	100	100

Table 20: Correlation between CR and ES with OT, CT and OCDS Total in moderate AD

Moderate		OT	CD	OCDS Total
CR	Pearson Correlation	-0.120	-0.122	-0.128
	p-value	0.408	0.397	0.376
	N	50	50	50
ES	Pearson Correlation	0.214	.316	.287
	p-value	0.135	**0.025**	**0.044**
	N	50	50	50

Figure 24: Correlation between CR with OT, CT and OCDS Total in moderate AD

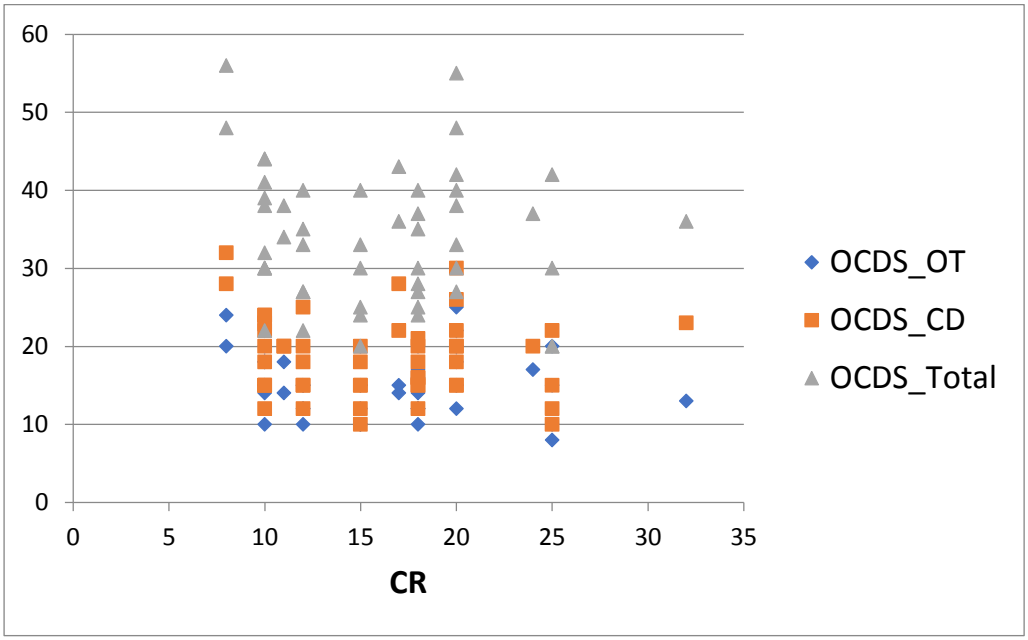


Figure 25: Correlation between ES with OT, CT and OCDS Total in moderate AD

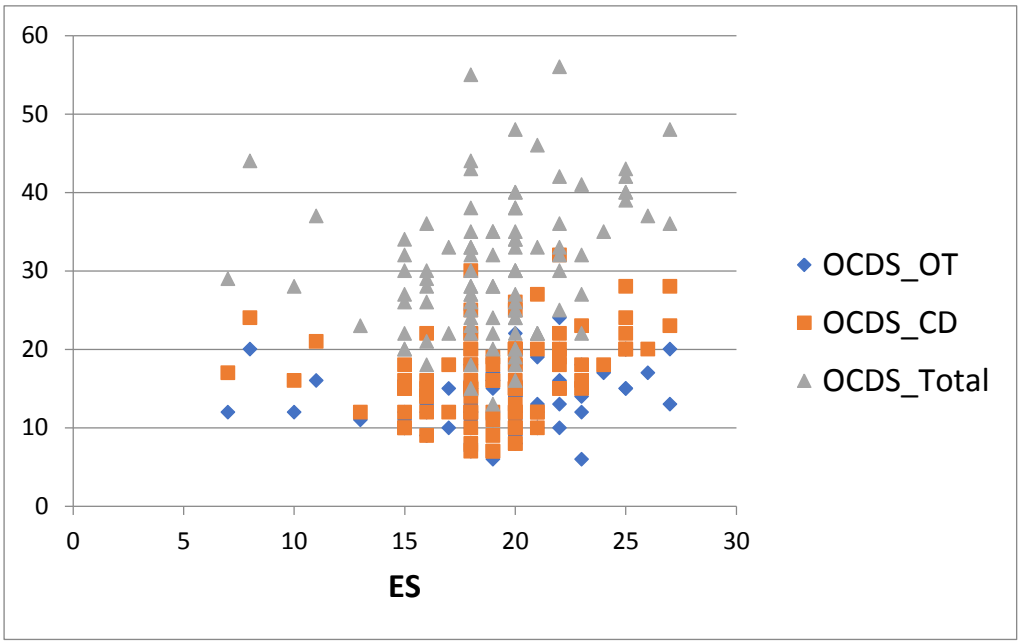


Table 21: Correlation between CR and ES with OT, CT and OCDS Total in severe AD

severe		OT	CD	OCDS Total
CR	Pearson Correlation	0.002	-0.019	0.320
	p-value	0.988	0.077	0.064
	N	50	50	50
ES	Pearson Correlation	-0.031	0.437	0.012
	p-value	0.829	0.046	0.036
	N	50	50	50

Figure 26: Correlation between CR with OT, CT and OCDS Total in severe AD

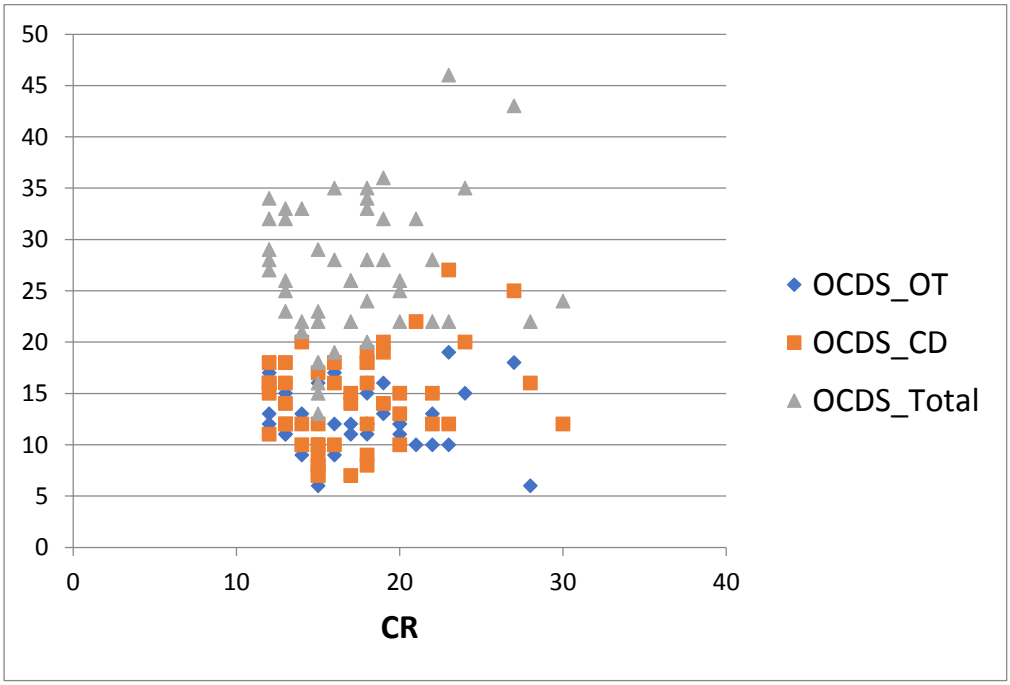


Figure 27: Correlation between ES with OT, CT and OCDS Total in severe AD

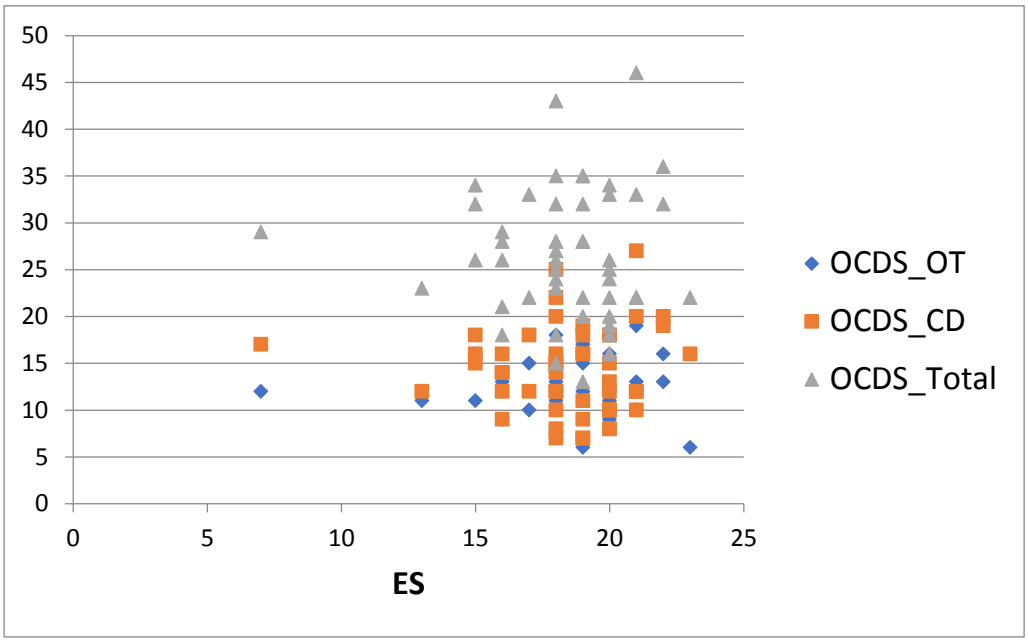


Table 22: Correlation between A and R with OT, CT and OCDS Total in moderate AD

Moderate		OT	CD	OCDS Total
A	Pearson Correlation	0.057	-0.064	-0.012
	p-value	0.696	0.658	0.932
	N	50	50	50
R	Pearson Correlation	.348	.288	.332
	p-value	**0.013**	**0.042**	**0.019**
	N	50	50	50

Figure 28: Correlation between A with OT, CT and OCDS Total in moderate AD

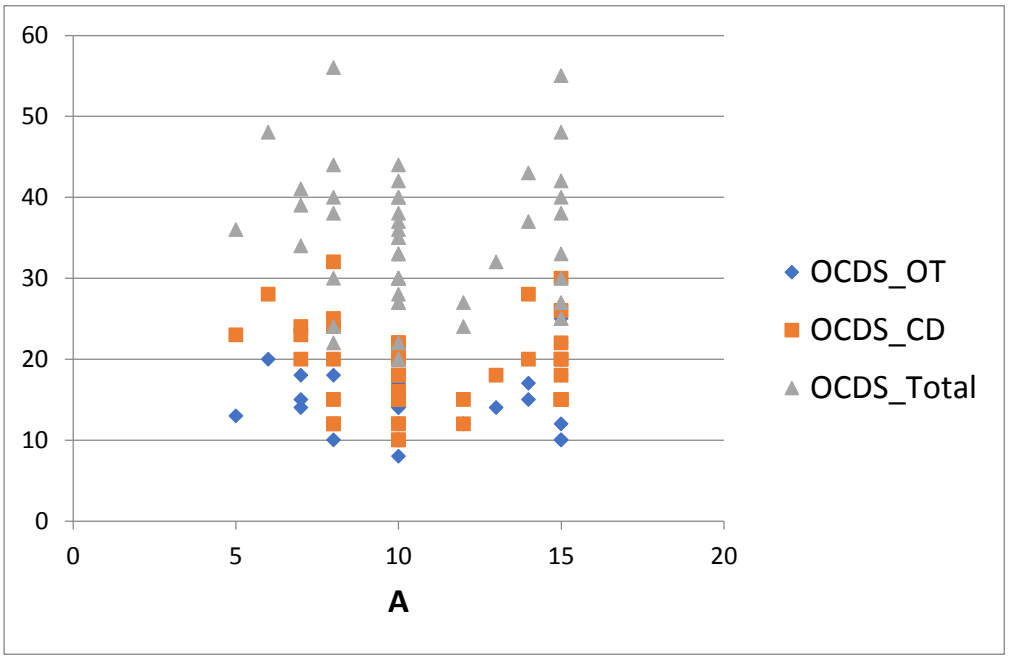


Figure 29: Correlation between R with OT, CT and OCDS Total in moderate AD

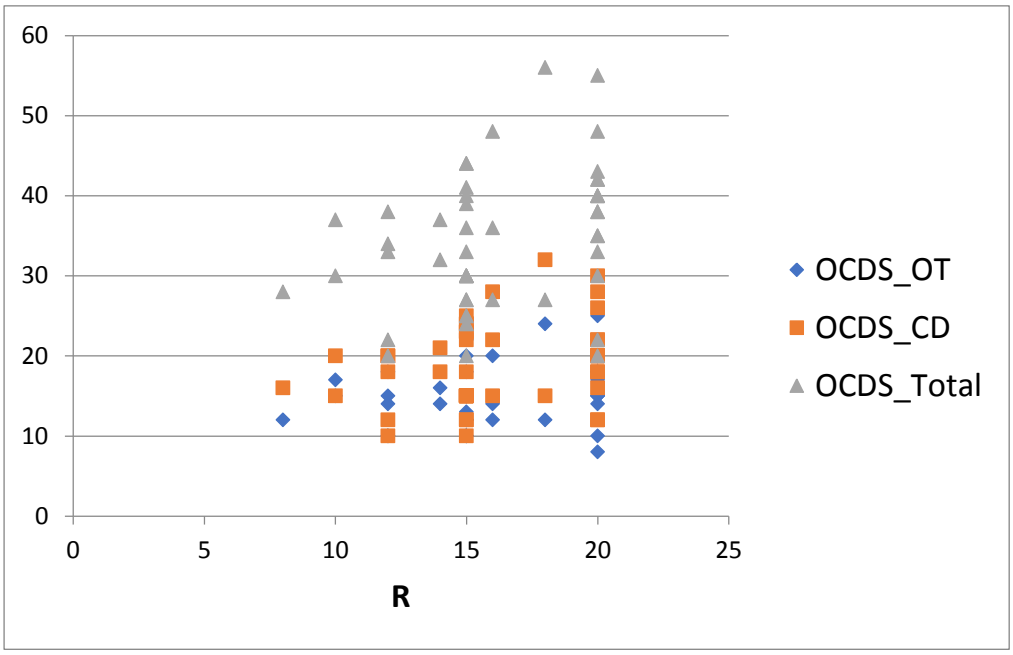


Table 23: Correlation between A and R with OT, CT and OCDS Total in severe AD

severe		OT	CD	OCDS Total
A	Pearson Correlation	0.109	-0.008	0.044
	p-value	0.453	0.958	0.761
	N	50	50	50
R	Pearson Correlation	0.308	0.406	0.305
	p-value	**0.026**	**0.049**	**0.020**
	N	50	50	50

Figure 30: Correlation between A with OT, CT and OCDS Total in severe AD

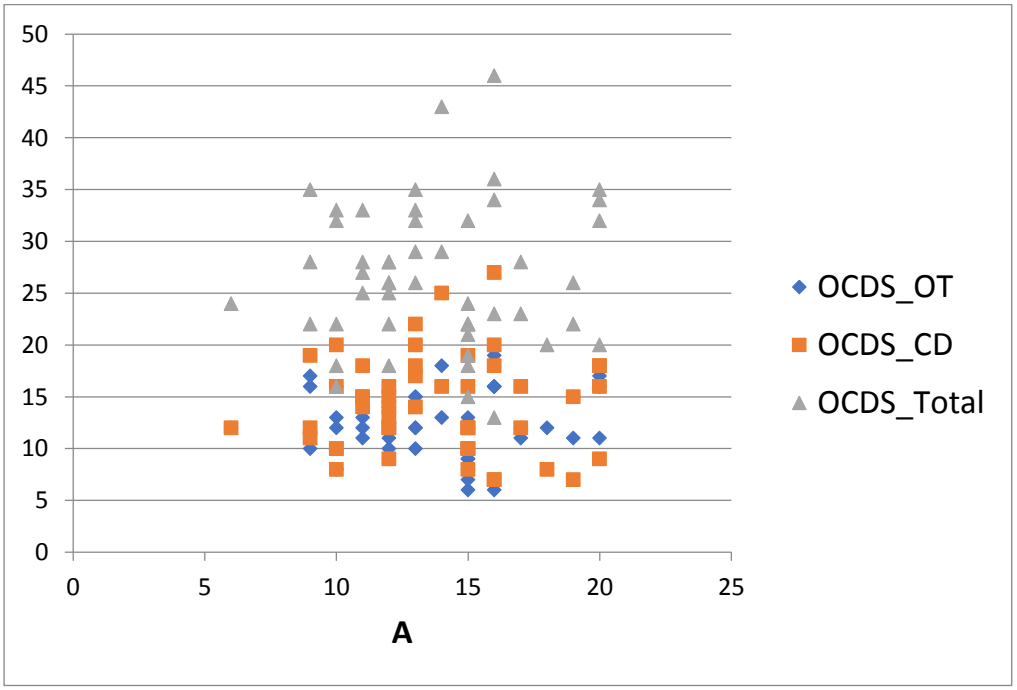


Figure 31: Correlation between R with OT, CT and OCDS Total) in severe AD

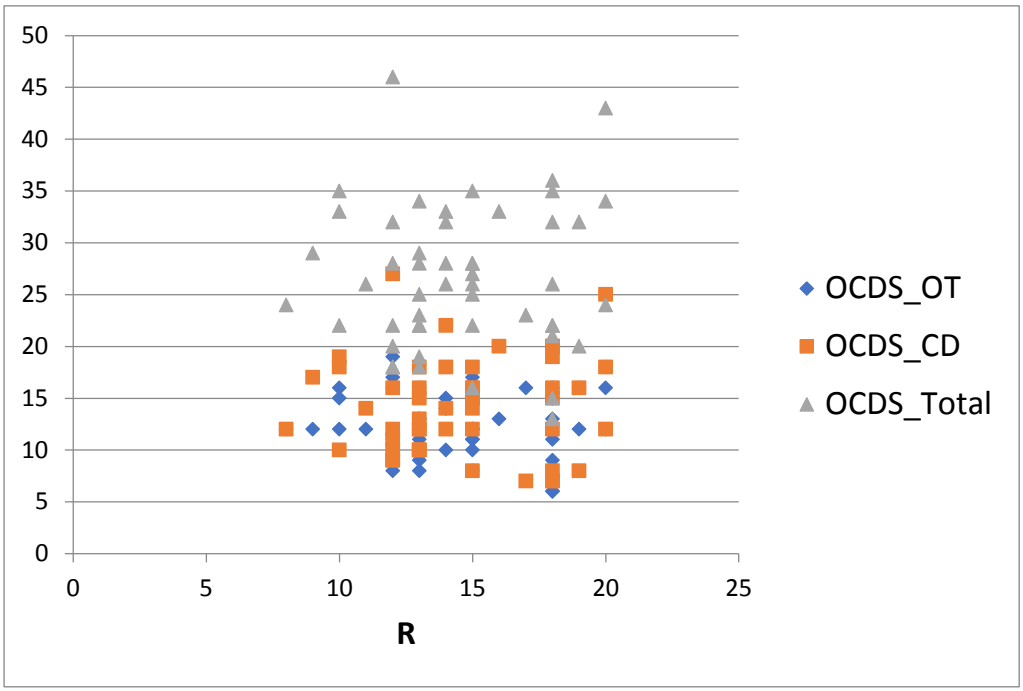


Table 24: Correlation between EA with OT, CT and OCDS Total in moderate AD

Moderate		OT	CD	OCDS Total
EA	Pearson Correlation	.286	.319	.322
	p-value	**0.044**	**0.024**	**0.023**
	N	50	50	50

Figure 32: Correlation between EA with OT, CT and OCDS Total in moderate AD

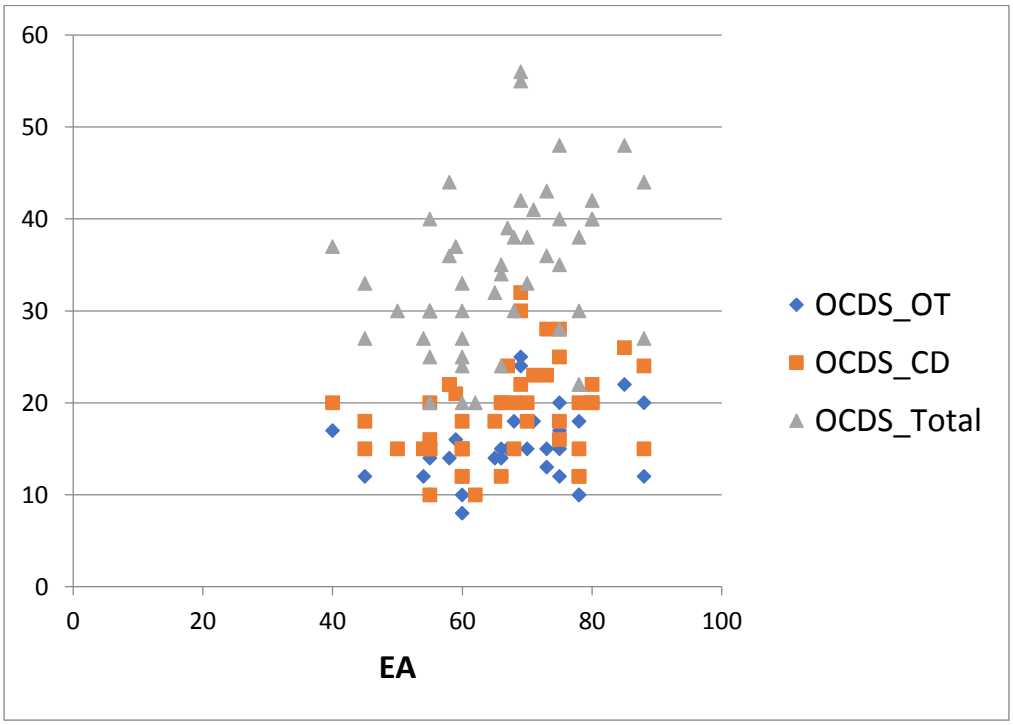


Table 25: Correlation between EA with OT, CT and OCDS Total in severe AD

severe		OT	CD	OCDS Total
EA	Pearson Correlation	0.395	0.417	0.409
	p-value	**0.048**	**0.030**	**0.035**
	N	50	50	50

Figure 33: Correlation between EA with OT, CT and OCDS Total in severe AD

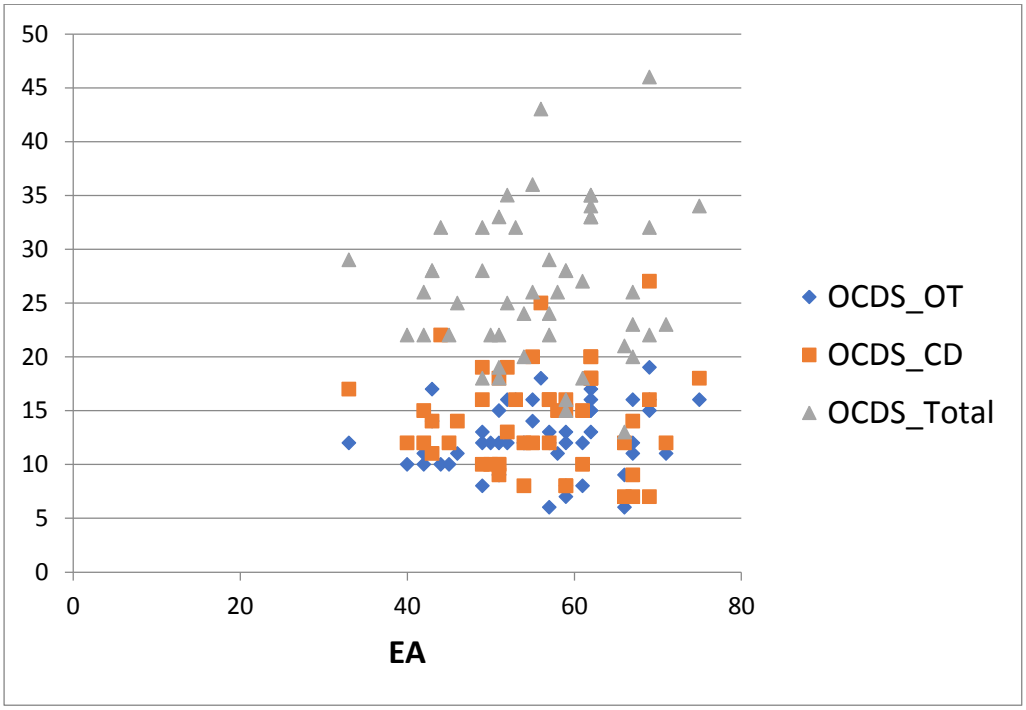


Table 26: Correlation between CR and ES with DIF, DDF, EOT and TAS-20 Total in moderate AD

Moderate		DIF	DDF	EOT	TAS-20 Total
CR	Pearson Correlation	0.013	-0.247	-0.178	-0.201
	p-value	0.926	0.084	0.215	0.161
	N	50	50	50	50
ES	Pearson Correlation	.498	0.375	0.209	.354
	p-value	**0.000**	**0.045**	**0.039**	**0.012**
	N	50	50	50	50

Figure 34: Correlation between CR with DIF, DDF, EOT and TAS-20 Total in moderate AD

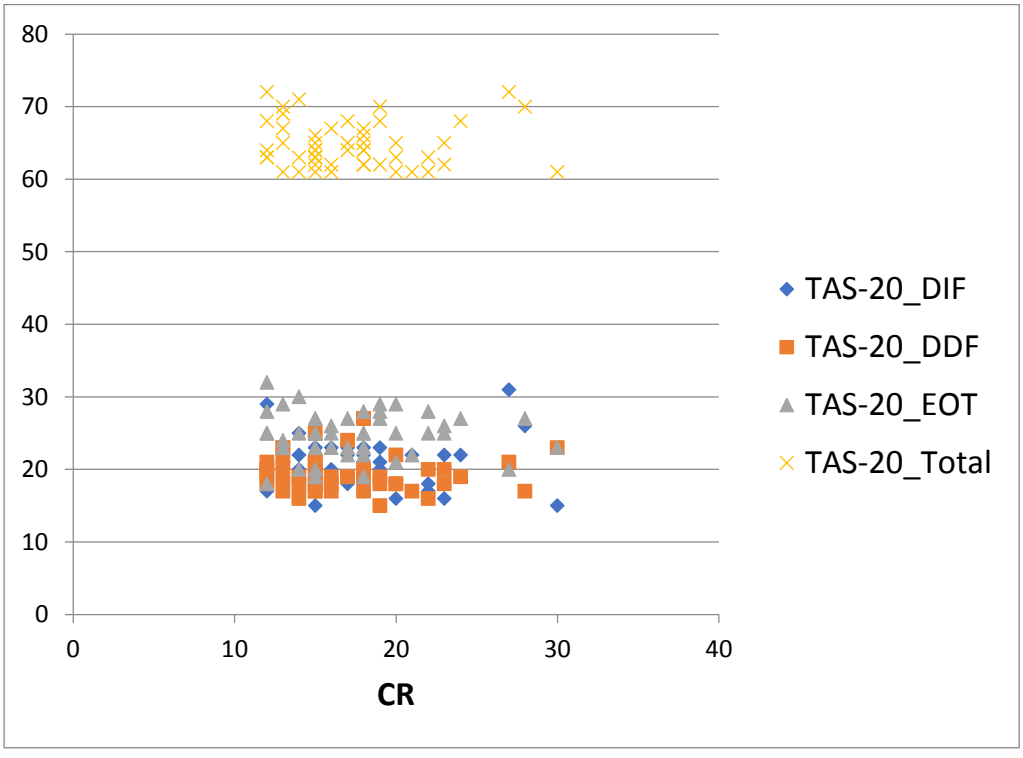


Figure 35: Correlation between ES with DIF, DDF, EOT and TAS-20 Total in moderate AD

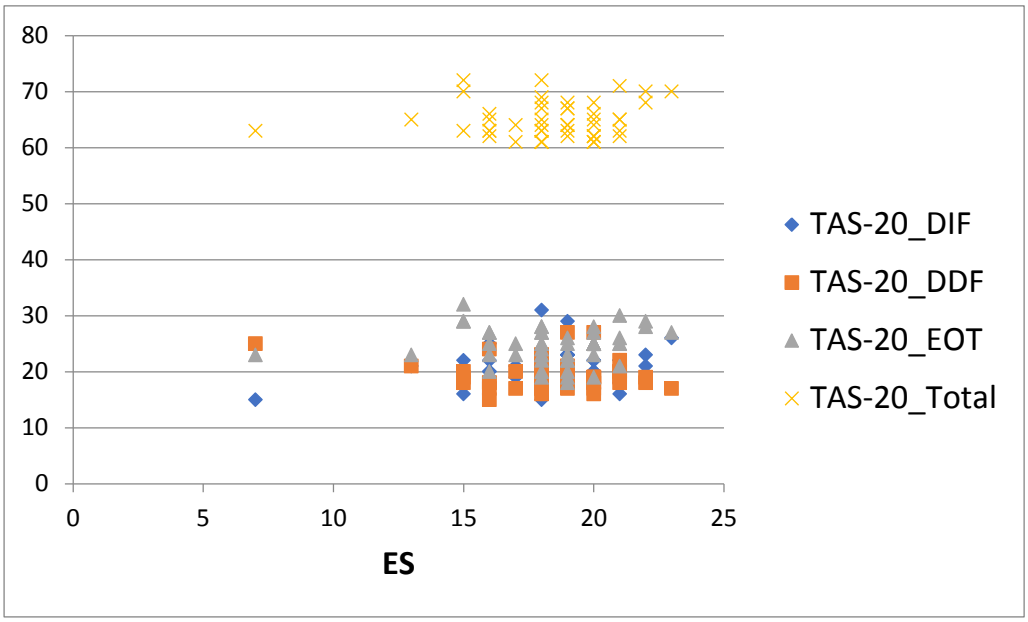


Table 27: Correlation between CR and ES with DIF, DDF, EOT and TAS-20 Total in severe AD

severe		DIF	DDF	EOT	TAS-20 Total
CR	Pearson Correlation	0.023	-0.017	-0.008	0.001
	p-value	0.874	0.909	0.955	0.995
	N	50	50	50	50
ES	Pearson Correlation	0.500	0.441	0.309	0.449
	p-value	**0.014**	**0.049**	**0.041**	**0.021**
	N	50	50	50	50

Figure 36: Correlation between CR with DIF, DDF, EOT and TAS-20 Total in severe AD

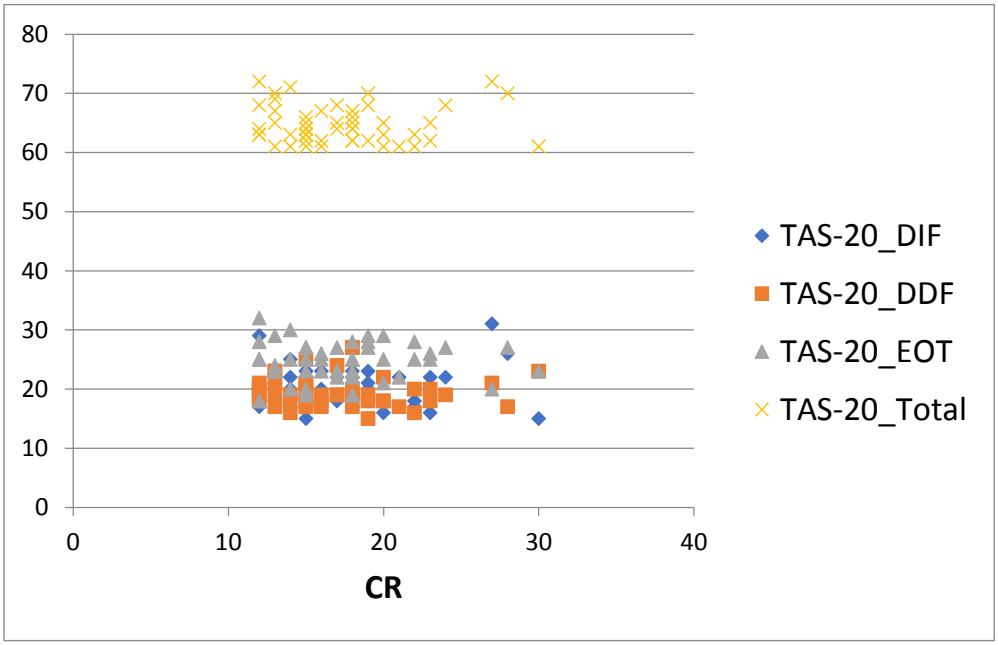


Figure 37: Correlation between ES with DIF, DDF, EOT and TAS-20 Total in severe AD

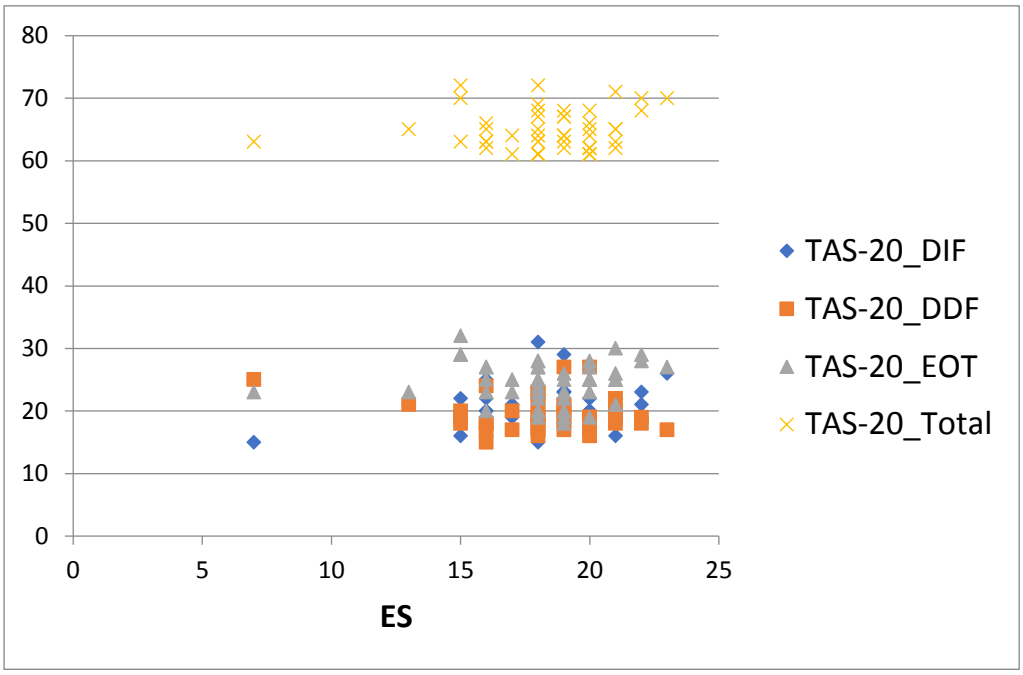


Table 28: Correlation between A and R with DIF, DDF, EOT and TAS-20 Total in moderate AD

Moderate		DIF	DDF	EOT	TAS-20 Total
A	Pearson Correlation	0.235	0.187	0.289	0.246
	p-value	0.807	0.546	0.415	0.086
	N	50	50	50	50
R	Pearson Correlation	.331	0.118	-0.043	0.243
	p-value	**0.019**	0.414	0.766	0.089
	N	50	50	50	50

Figure 38: Correlation between A with DIF, DDF, EOT and TAS-20 Total in moderate AD

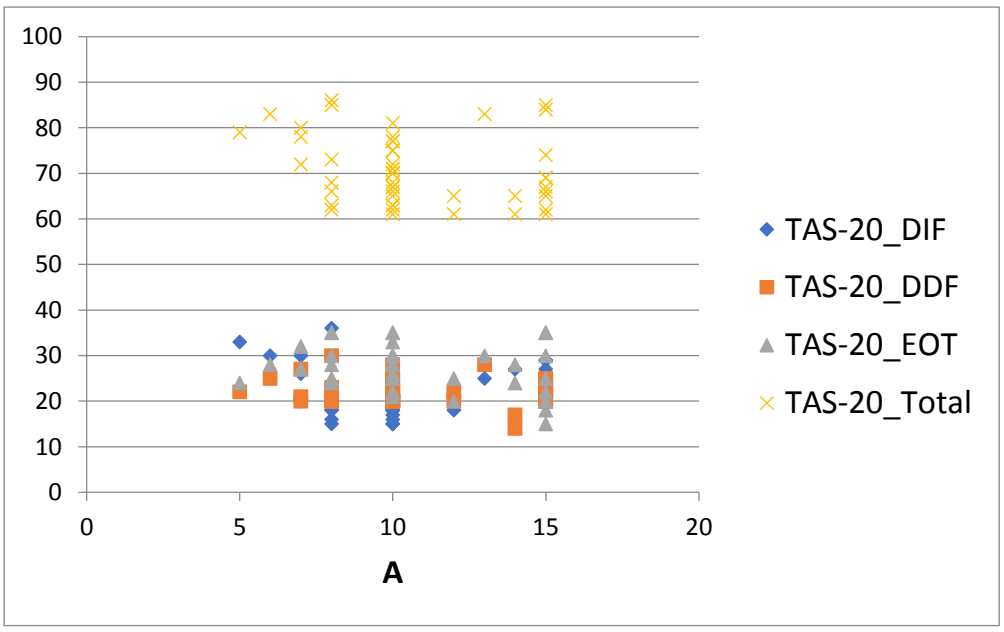


Figure 39: Correlation between R with DIF, DDF, EOT and TAS-20 Total in moderate AD

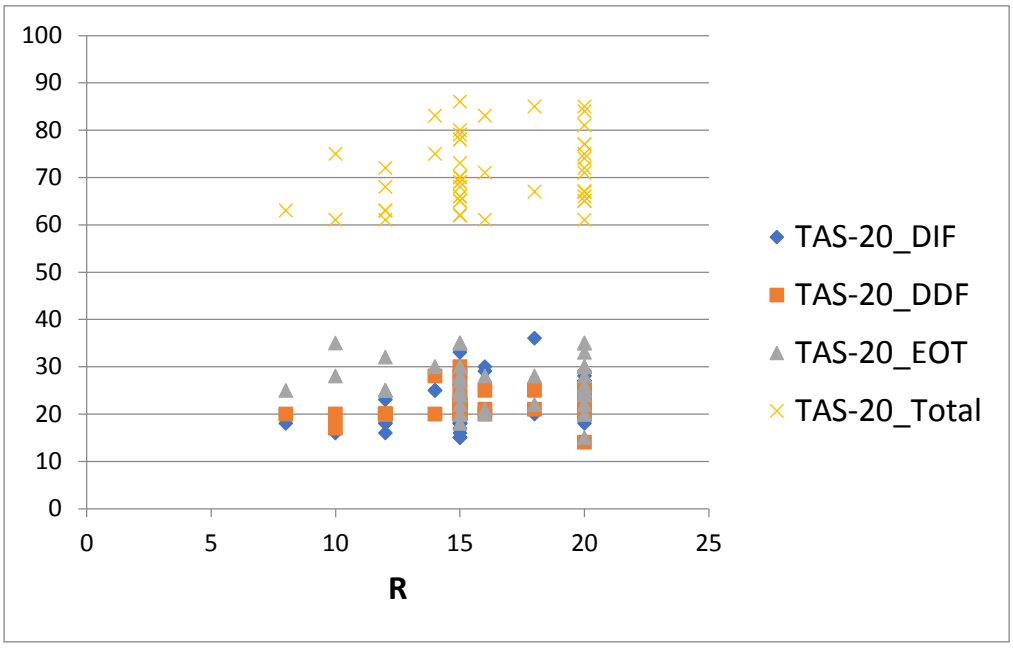


Table 29: Correlation between A and R with DIF, DDF, EOT and TAS-20 Total in severe AD

severe		DIF	DDF	EOT	TAS-20Total
A	Pearson Correlation	0.178	0.143	0.034	0.327
	p-value	0.215	0.322	0.813	0.120
	N	50	50	50	50
R	Pearson Correlation	.382	-0.110	0.216	.502
	p-value	**0.006**	0.447	0.132	**0.000**
	N	50	50	50	50

Figure 40: Correlation between A with DIF, DDF, EOT and TAS-20 Total in severe AD

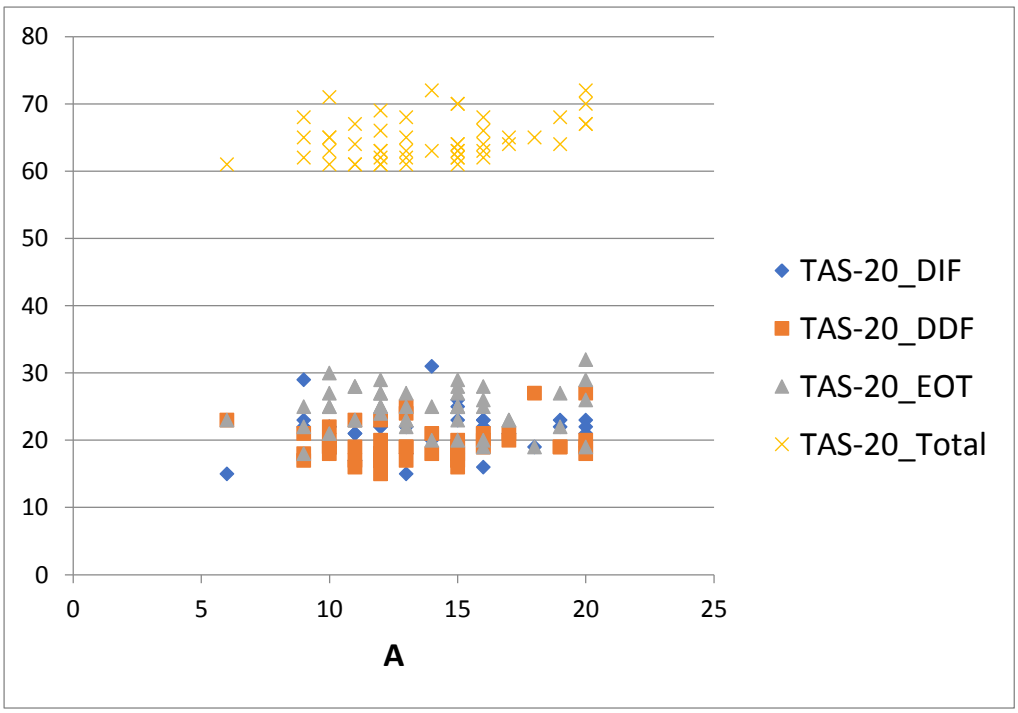


Figure 41: Correlation between R with DIF, DDF, EOT and TAS-20 Total in severe AD

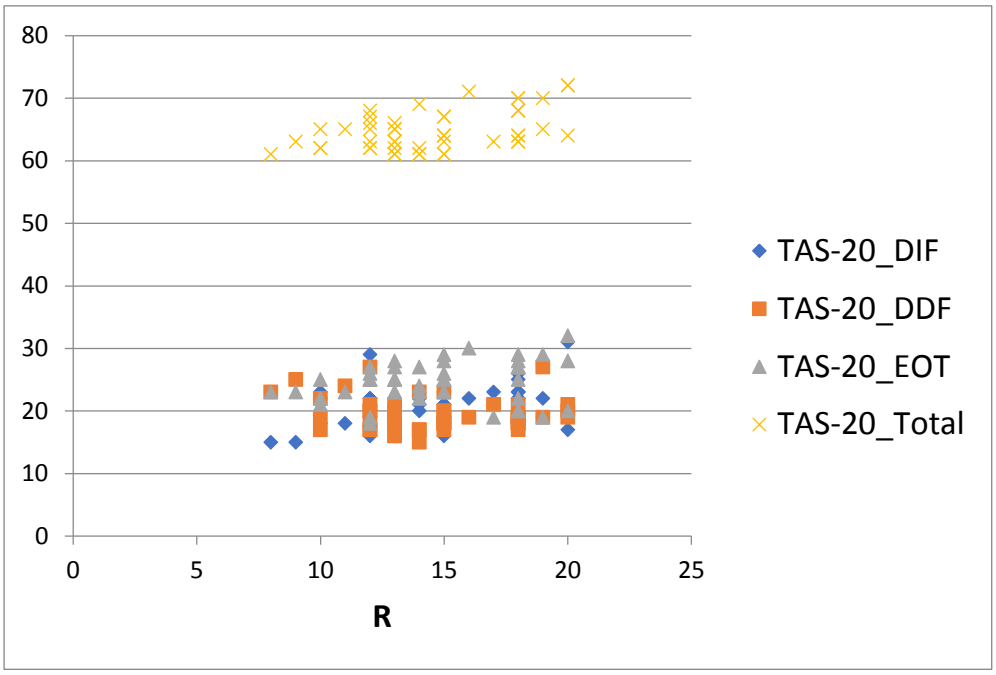


Table 30: Correlation between EA with DIF, DDF, EOT and TAS-20 Total in severe AD

Severe		DIF	DDF	EOT	TAS-20 Total
EA	Pearson Correlation	.298	0.155	0.241	.419**
	p-value	**0.036**	0.282	0.091	**0.002**
	N	50	50	50	50

Figure 42: Correlation between EA with DIF, DDF, EOT and TAS-20 Total in severe AD

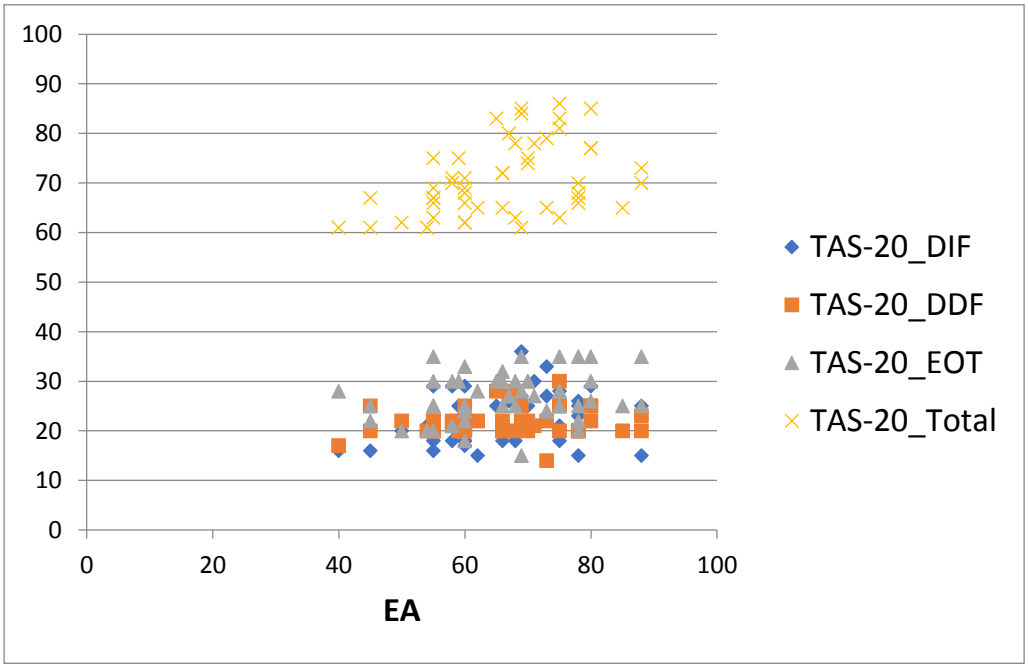
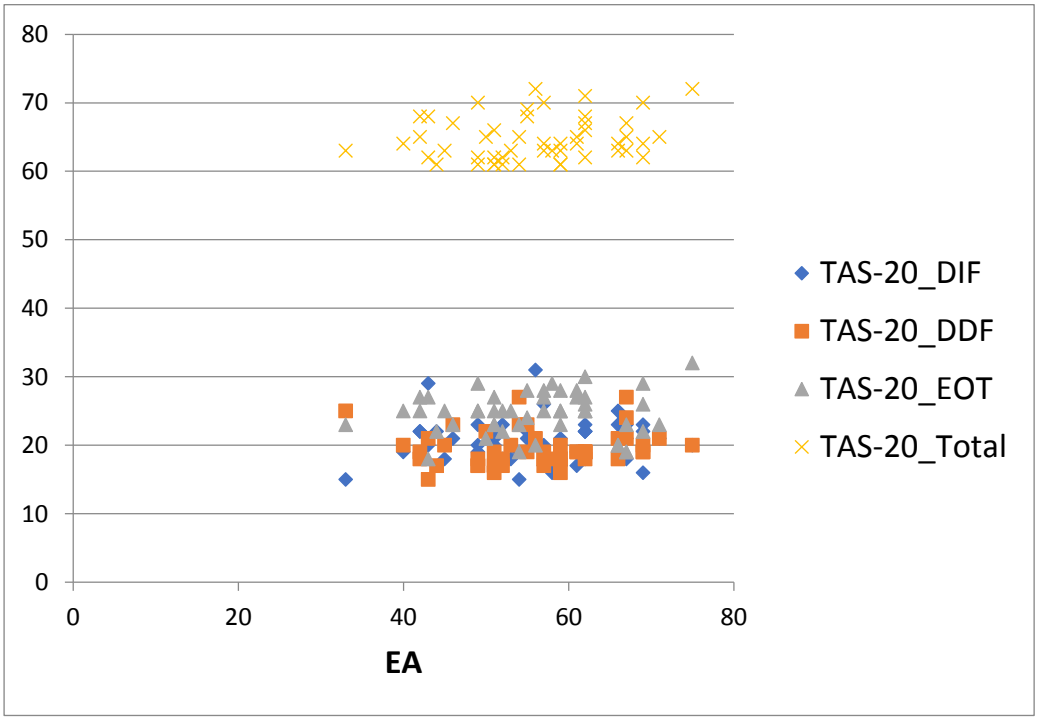


Table 31: Correlation between EA with DIF, DDF, EOT and TAS-20 Total in moderate AD

severe		DIF	DDF	EOT	TAS-20 Total
EA	Pearson Correlation	0.039	0.094	0.093	0.208
	p-value	0.786	0.518	0.519	**0.015**
	N	50	50	50	50

Figure 43: Correlation between EA with DIF, DDF, EOT and TAS-20 Total in moderate AD



RESULTS

The current research aimed to study the relationship emotional regulation strategies on alexithymia and cravings in AD. A total of 200 males participated in the study of age range 18-70 years, where 100 males were the patients with AD and 100 males were healthy control. The sample for AD patients was selected from department of Psychiatry (inpatient and outpatient) of DMC& H. The sample for the healthy control was selected from general population. The purposive sampling technique was chosen to select the participants. A written consent was duly signed from all the participants followed by the sociodemographic proforma, ERQ, CERQ, BEAQ, TAS-20, OCDS in the AD group. Whereas, the healthy controls were not assessed on OCDS but were on GHQ-12.

The figure 1 and Table 1: Shows the distribution of participants in terms of age groups. The mean age for study group is 39 years with SD of 9.47, on the other hand, the mean age for the control group was 35 years with SD of 6.21, There is significant difference between the two groups with the t- value of 3.892 and p -value of 0.000.

The table 2 figure 2 shows the distribution of participants on the basis of qualification in AD, where in the study group 15% are educated below 10^{th}, 19% are educated from standard 10^{th} to 12^{th}, 35% are undergraduates, 27% are postgraduates and 4% are educated above postgraduation.

Table 2 and figure 3 shows that in the control group 12% are educated below 10^{th}, 22% are educated from standard 10^{th} to 12^{th}, 28% are undergraduates, 43% are postgraduates and 5% are educated above postgraduation. There is a significant difference between the two groups. (p=.0001)

Table 3 and Figure 4 shows the distribution of participants in terms of locality/region, where in the study group and the control group 53% participants are from a rural background and 47% belong to the urban

area. There is no significant difference between the two groups.

Table 4 and figures 5 shows the comparison between the two groups on the basis of CR and ES. Our results exhibit that NAD group (M=22.21, SD=4.82) is significantly higher on CR than AD group (M= 16.58, SD=4.91), t= -8.188, p-value= 0.000. On ES, the AD (M=19.06, SD=3.51) is significantly higher than NAD (M= 17.42, SD=4.09), t=3.045, p=0.003

Table 5 and figure 6 show the comparison between the two groups on the basis of A and R. On A, the AD (M=12.22, SD=3.42) and NAD (M=13.09, SD=3.06) depicts no significant difference, t= -1.897, p value= 0.059, p= n.s

On R, the AD (M=15.33, SD=3.22) is significantly higher than NAD (M= 10.85, SD=1.91), t=11.961, p value= 0.000

Table 6 and figure 7 shows comparisons between the study and the control group on the basis of EA, where, the mean scores for the AD (M=60.97, SD=11.40) is significantly higher than mean scores of NAD (M= 53.78, SD=10.56), t= 4.628, p value= 0.000.

Table 7 and figure 8 shows comparisons between the study and the control group on the basis of alexithymia and its subscales; DIF, DDF, EOT, where on DIF, the mean score for AD (M= 21.49, SD=4.27) is significantly higher than that of NAD (M= 20.00, SD=4.99), t= 2.269, p-value= 0.024.

On DDF, the mean score of AD group (M= 20.64, SD=2.95) is significantly higher than NAD group (M= 19.17, SD=3.63), t= 3.146, p value= 0.002.

On EOT, the AD group (M= 25.67, SD=4.19) is significantly higher than NAD group (M= 23.61, SD=3.30), t= 3.865, p value= 0.000

On TAS-20 Total, the AD group (M= 67.80, SD=6.46) is significantly higher than NAD group (M= 62.78, SD=7.26), t= 5.167, p value= 0.000.

Table 8 and figure 9 shows the comparison between severe AD group

and moderate AD group (N= 50 each) on the basis of CR and ES. On CR, there is no significant difference between the moderate group (M=17.28, SD=4.26) and the severe group (M= 15.88, SD=5.43), t= -1.434, p=0.155, p= n.s.

On ES, the moderate AD group (M=18.38, SD=2.63) shows no significant difference than the severe AD group (M=19.74, SD=4.12), t= -1.967, p=0.052, p= n.s.

Table 9 and figure 10 shows the comparison between the moderate and severe AD on the basis of A and R. On A, the moderate group (M=13.78, SD=3.33) is significantly higher than the severe group (M=10.66, SD=2.76), t= -5.103, p=0.052. On R, the severe group (M=16.10, SD=3.22) is significantly higher than the moderate group (M=14.56, SD=3.07), t= 2.449, p=0.016.

Table 10 and figure 11 shows the comparison between the moderate and severe AD on the basis of EA. On EA, the severe AD group (M=66.08, SD=11.16) is significantly higher than the moderate AD group (M=55.86, SD=9.19), t= 4.998, p=0.000.

Table 11 and figure 12 shows the comparison between severe and moderate AD group (N= 50 each) on the basis of DIF DDF and EOT and TAS-20

On DIF, the severe group (M= 22.34, SD=5.05) is significantly higher than moderate group (M= 20.64, SD=3.13), t= 2.023, p value= 0.046.

On DDF, the severe group (M= 21.78, SD=2.85) is significantly higher than moderate group (M= 19.50, SD=2.60), t= 4.180, p value= 0.000.

On EOT, the severe group (M= 26.74, SD=4.81) is significantly higher than moderate group (M= 24.60, SD=3.14), t= 2.632, p value= 0.010.

On TAS-20 Total, the severe group (M= 70.86, SD=7.42) is significantly higher than moderate group (M= 64.74, SD=3.17), t= 5.364, p value= 0.000.

Table 12 and figure 13 shows the comparison between severe AD and moderate AD group (N= 50 each) on the basis of craving (OCDS Total) and its subscales; OT and CD

On OT, the severe AD group (M= 15.42, SD=3.94) is significantly higher than moderate AD group (M= 12.40, SD=3.13), t= 4.245, p value= 0.000

On CD, the severe AD group (M= 18.68, SD=5.12) is significantly higher than moderate AD group (M= 14.20, SD=4.64), t= 4.64, p value= 0.000

On OCDS Total, the severe AD group (M= 34.10, SD=8.58) is significantly higher than moderate AD group (M= 26.60, SD=6.91), t= 4.813, p value= 0.000

Table 13, figure 14 and 15 shows the correlation between CR, ES with OT, CD and OCDS Total in AD. There is no significant correlation between CR and OT (r= -.123, p= 0.223). There is no significant correlation between CR and CD (r=-.014, p=0.887). There is no significant between CR and OCDS Total (r= -.064, p= .528). There is no significant correlation between ES and OT (r= .195, p= 0.52). There is positive correlation between ES and CD (r=259, p= 0.009). There is a positive correlation between ES and OCDS Total (r= .248, p= 0.013).

Table 14 and figure 16 and 17 shows the correlation between CR, ES with DIF, DDF, EOT and TAS-20 Total, in AD. There is no significant correlation between CR and DIF (r= -.013, p= 0.9). There is no significant correlation between CR and DDF (r=-.193, p=.054). There is no significant correlation between CR and EOT (r=-.152, p=.131). There is no significant correlation between CR and TAS-20 Total (r=-.195, p=.052).

There is a positive correlation between ES and DIF (r=0.442, p=0.000). There is a positive correlation between ES and TAS-20 Total (r=0.46, p=0.000). There is no significant correlation between ES and DDF (r=.052, p=.608). There is no significant correlation between ES and

EOT (r=.047, p= .644)

Table 15, figure 18 and 19 shows the correlation between A and R with OT, CD and OCDS Total in AD

There is no significant correlation between A and OT (r= -.115, p= .255). There is no significant correlation between A and CD (r= -.220, p= .028). There is no significant between A and OCDS Total (r= -.188, p= .061).

There is a positive correlation between R and OT (r= 0.273, p=0.006). There is positive correlation between R and CD (r=.256, p= 0.010). There is a positive correlation between R and OCDS Total (r= 0.281, p=.005).

Table 16, figure 20 and 21 shows the correlation between A and R with DIF, DDF, EOT and TAS-20 Total in AD

There is no significant correlation between A and DIF (r= -.046. p=.653) There is no significant correlation between A and DDF (r= -.151, p= .133). There is a negative correlation between A and EOT (r= -.238, p=0.017). There is a negative correlation between A and TAS-20 Total (r= -.254, p=0.011).

Our results depict a significant positive correlation between R and DIF (r= .374, p= .000). There is no significant correlation between R and DDF (r= .104, p=.302). There is no significant correlation between R and EOT (r= .114, p=.260). There is a significant positive correlation between R and TAS-20 Total (r= .368, p= .000).

Table 17 and figure 22 shows the correlation between EA with OT, CD and OCDS Total in AD

Our resists show that there is a significant positive correlation between EA and OT (r= .383, p= .000). There is a significant positive correlation between EA and CD (r= .340, p= .001). There is a significant positive correlation between EA and OCDS Total (r= .382, p= .000).

Table 18 and figure 23 shows the correlation between EA with DIF,

DDF, EOT and TAS-20 Total in AD.

Our results reveal a significant positive correlation between EA and DIF (r= .273. p=.006) There is a significant positive correlation between EA and DDF (r= .281, p= .005). There is a significant positive correlation between EA and EOT (r= .278, p=.005). There is a significant positive correlation between EA and TAS-20 Total (r= .489, p= .000).

Table 19 shows the correlation between CR, ES, A, R and EA with DIF, DDF, EOT and TAS-20 Total in NAD.

Our result depicts a significant positive correlation between R and DDF only (r=.217, p=.030). There was no significant correlation found amongst other variables.

Table 20, figure 24 and 25 shows the correlation between CR, ES with OT, CD and OCDS Total in moderate AD.

Our results show that there is no significant correlation between CR and OT (r= -.120, p= .408). There is no significant correlation between CR and CD (r= -.122, p= .397). There is no significant correlation between CR and OCDS (r= -.128, p= .376). There is no significant correlation between ES and OT (r= .214, p= .135). There is a significant positive correlation between ES and CD (r= .316, p= .025). There is a significant positive correlation between ES and OCDS (r= .287, p= .044).

Table 21, figure 26 and 27 shows the correlation between CR, ES with OT, CD and OCDS Total in severe AD

Our results reveal that there is no significant correlation between CR and OT (r= .002, p= .988). There is no significant correlation between CR and CD (r=. -019, p= .077). There is no significant correlation between CR and OCDS (r= .320, p= .064). There is no significant correlation between ES and OT (r= -.031, p= .829). There is a significant positive correlation between ES and CD (r= .437, p= .046). There is a significant positive correlation between ES and OCDS (r= .012, p= .036).

Table 22, figure 28 and 29 shows the correlation between A and R with OT, CD and OCDS Total in moderate AD.

Our study reveals that there is no significant correlation between A and OT (r= .057, p=.696). There is no significant correlation between A and CD (r= -.064, p=0.658). There is no significant correlation between A and OCDS (r= -.012, p= .932).

There is a significant positive correlation between R and OT (r= .348, p= .013). There is a significant positive correlation between R and CD (r= .288, p= .042). There is a significant positive correlation between R and OCDS (r= .332, p= .019).

Table 23, figure 30 and 31 shows the correlation between A and R with OT, CD and OCDS Total in severe AD.

Our study reveals that there is no significant correlation between A and OT (r= .109, p=.453). There is no significant correlation between A and CD (r= -.008, p=0.958). There is no significant correlation between A and OCDS (r= .044, p= .761).

There is a significant positive correlation between R and OT (r= .308, p= .026). There is a significant positive correlation between R and CD (r= .406, p= .049). There is a significant positive correlation between R and OCDS (r= .305, p= .020).

Table 24 and figure 32 shows the correlation between EA with OT, CD and OCDS Total in moderate AD.

Our findings depicts that there is a significant positive correlation between EA and OT (r= .286, p= .044). There is a significant positive correlation between EA and CD (r=.319, p= .024). There is a significant positive correlation between EA and OCDS (r=.322, p= .023).

Table 25 and figure 33 shows the correlation between EA with OT, CD and OCDS Total in severe AD.

Our findings depict that there is a significant positive correlation between EA and OT (r= .395, p= .048). There is a significant positive

correlation between EA and CD (r=.417, p= .030). There is a significant positive correlation between EA and OCDS (r=.409, p= .035).

Table 26, figure 34 and 35 shows the correlation between CR and ES with DIF, DDF, EOT and TAS-20 Total in moderate AD.

Our findings show that there is no significant correlation between CR and DIF (r= .013, p=.926). There is no significant correlation between CR and DDF (r= -.247, p=.084). There is no significant correlation between CR and EOT (r= -.178, p=.215). There is no significant correlation between CR and TAS-20 Total (r= -.201, p=.161).

Our findings depict a significant positive correlation between ES and DIF (r=.498, p=.000). There is a significant positive correlation between ES and DDF (r=. 375, p=.045). There is a significant positive correlation between ES and EOT (r=. 209, p=.039). There is a significant positive correlation between ES and TAS-20 total (r=. 354, p=.012).

Table 27, figure 36 and 37 shows the correlation between CR and ES with DIF, DDF, EOT and TAS-20 Total in severe AD.

Our findings show that there is no significant correlation between CR and DIF (r= .023, p=.874). There is no significant correlation between CR and DDF (r= -.017, p=.909). There is no significant correlation between CR and EOT (r= -.008, p=.955). There is no significant correlation between CR and TAS-20 Total (r= -.001, p=.995).

Our findings depict a significant positive correlation between ES and DIF (r=.500, p=.014). There is a significant positive correlation between ES and DDF (r=. 441, p=.049). There is a significant positive correlation between ES and EOT (r=. 309, p=.041). There is a significant positive correlation between ES and TAS-20 total (r=.449, p=.021).

Table 28, figure 38 and 39 shows the correlation between A and R with DIF, DDF, EOT and TAS-20 Total in moderate AD.

Our findings show that there is no significant correlation between A and DIF (r=.235, p=.807). There is no significant correlation between A and DDF (r= .187, p=.546). There is no significant correlation between A and EOT (r= .289, p=.415). There is no significant correlation between A and TAS-20 Total (r= .246, p=.086).

Our findings show that there is a significant positive correlation between R and DIF (r=.331, p=.019). There is no significant correlation between R and DDF (r= .118, p=.414). There is no significant correlation between R and EOT (r= -.043, p=.766). There is no significant correlation between R and TAS-20 Total (r= .243, p=.089).

Table 29, figure 40 and 41 shows the correlation between A and R with DIF, DDF, EOT and TAS-20 Total in severe AD.

Our findings show that there is no significant correlation between A and DIF (r=.178, p=.215). There is no significant correlation between A and DDF (r= .143, p=.322). There is no significant correlation between A and EOT (r= .034, p=.813). There is no significant correlation between A and TAS-20 Total (r= .327, p=.120).

Our findings show that there is a significant positive correlation between R and DIF (r=.382, p=.006). There is no significant correlation between R and DDF (r= -.110, p=.447). There is no significant correlation between R and EOT (r= .216, p=.132). There is a positive significant correlation between R and TAS-20 Total (r= .502, p=.000).

Table 31 and figure 42 shows the correlation between EA and DIF, DDF, EOT and TAS-20 Total in severe AD.

Our findings show that there is a significant positive correlation between EA and DIF (r=.298, p=.036). There is no significant correlation between EA and DDF (r= .155, p=.282). There is no significant correlation between EA and EOT (r= .241, p=.091). There is a positive significant correlation between EA and TAS-20 Total (r= .419, p=.002).

Table 30 and figure 40 shows the correlation between EA and DIF,

DDF, EOT and TAS-20 Total in moderate AD.

Our findings show that there is no significant correlation between EA and DIF (r=.298, p=.016). There is no significant correlation between EA and DDF (r= .155, p=.282). There is no significant correlation between EA and EOT (r= .241, p=.091). There is a positive significant correlation between EA and TAS-20 Total (r= .419, p=.002).

Table 31 and figure 42 shows the correlation between EA with DIF, DDF, EOT and TAS-20 Total in severe AD.

Our findings reveal that there is no significant correlation between EA and DIF (r=.039, p=.786). There is no significant correlation between EA and DDF (r=.094, p=.518). There is no significant correlation between EA and EOT (r= .093, p=.519). There is a positive significant correlation between EA and TAS-20 Total (r= .208, p=.015).

DISCUSSION

The present study was conducted with an aim to explore the relationship of emotional regulation strategies on alexithymia and cravings in AD. In order to fulfil our aim, the study was conducted A total of 200 subjects (100 males with AD and 100 males with NAD) of age range 18 to 70 years participated in the study. The males with AD were selected from inpatient and outpatient department of Psychiatry of Dayanand Medical College & Hospital, Ludhiana. The healthy control subjects were selected from general population.

SOCIO- DEMOGRPAHIC VARIABLES

Our study consists of a total sample size of 200 male individuals with the age range between 18 to 70 years. Out of the total sample size, 100 are the male patients with AD and 100 were NAD, those were selected from the general population. According to our collected data the mean age and standard deviation of AD and NAD participants calculated to be M= 39.42, SD= 9.47 and M=35.01, SD=6.21 respectively (t=3.892, p=.000)

We have conducted our study on 100 participants with AD, they are distributed on the basis of qualification as follows:

Below 10^{th}- 15, 10^{th}-12^{th} -19, Undergraduate-35, Postgraduate- 27 and above Postgraduate – 4. Whereas, the distribution of participants with non-alcohol dependence on the basis of qualification as follows:

Below 10^{th}- 12, 10^{th}-12^{th} -22, Undergraduate-28, Postgraduate- 43 and above Postgraduate – 5 participants.

The participants are also distributed on the basis of locality. We found that 53% of AD and NAD participants belong to rural region/area, whereas, 47% of alcoholic and non- alcoholic participants come from urban region.

The aim of the current study was to investigate the relationship of emotional regulation strategies on alexithymia and cravings in AD. To fulfil this aim we had three main objectives:

1. The relationship between emotional regulation strategies and alexithymia in AD and NAD

2. The relationship between emotional regulation strategies and cravings in AD.

3. The relationship of emotion regulation strategies on alexithymia and craving in moderate and severe AD. Mean, SD, t-test and Pearson's Correlation were computed for this purpose.

CR and ES in AD and NAD

Our results depict that NAD group is significantly higher on CR as compared to the AD group. The results reveal that the use of CR emotion regulation strategy is more in NAD group, suggesting that they have higher tendency to re-interpret and give a new meaning to stressful and emotionally arousing situation. This tendency to re-interpret and perceive the situation with a new perspective is found to be less in the AD group.

On the other hand, we found that the AD group is significantly high on the ES emotional regulation strategy in comparison to the NAD group. On the basis of our results, we concluded that the NAD group tends to suppress their emotions which proves to be an obstacle while expressing themselves and further stopping them from sharing their feelings, thoughts and emotions freely. This emotional suppression has found to be low in the case of NAD group.

Our results are well supported by Norberg et al. (2016) [98]. The authors concluded in their study that CR emotion regulation strategy was negatively correlated to alcohol consumption and the problems related to alcohol consuming behaviour while a positive correlation was reported between ES and alcohol consumption. Thus, indicating the important role of emotional regulation strategies in pregaming and

problems associated with consumption of alcohol. The participants that used CR reported to have less alcohol associated problems. On the other hand, students that used ES more frequently in order to deal with their emotions had more alcohol related problems and pregaming.

Khalid et al. (2018) [129] compared emotional regulation strategies in alcohol and non-alcohol individuals where they reported that the individuals with alcohol use were high on ES and low on ES. These results indicated that the individuals with alcohol use disorder had less tendency to re-interpret the situation and the emotional cues via using the mental processes. These individuals inhibit their emotions and lower their emotional expression whenever they encounter a stressful and emotionally arousing situation. On the hand, the non-alcohol users had better tendency to rephrase the emotional situations by using cognitive processes.

A and R in AD and NAD

The results in our study reveal that on A, there was no significant difference between the AD (M=12.22, SD=3.42) and NAD (M=13.09, SD=3.06), t= -1.897, p value= 0.059, p= n.s. In view of Aldao et al. (2010) [130] acceptance was weakly correlated to disorders of substance use. According to Aldao et al. (2012) [131], acceptance emotional regulation strategy has no association with alcohol use.

Our results indicates that AD group is significantly higher on R in comparison to NAD. Our findings show that the individuals with AD tend to use rumination cognitive emotional strategy that involves excessive and repetitive thinking on an event, particularly emotionally distressing. The use of R cognitive emotional strategy is less in NAD group, showing that they experience less R with respect to stressful events.

Our results are in the line with the previous study of Caselli et al. (2010) [132], in which they concluded that R is a crucial predictor in alcohol use disorder. The authors also emphasised that R as an

emotion regulation strategy should be kept in perspective while planning the therapeutic treatment for individuals with alcohol use and related problems.

There are various risk factors which may cause an individual to return to alcohol use, R is comparatively new concept which is generally associated with alcohol use and problems related with it (Nolen-Hoeksema et al., 2008).[133]

EA in AD and NAD

In the present study, our results depict that AD is significantly higher on EA as compared to NAD which further signifies that individuals with AD tend to use more of EA strategy in order to achieve temporary relief from distressing thoughts and feelings.

EA strategy can be explained in terms of avoiding thoughts, feelings, memories, external or internal experiences for short term reliefs, even knowing that this can cause long term harms to the individual.

Our results are in accordance with the previous study done by Levin et al. (2012) [134]. The authors reported in their study that individuals with alcohol use disorder exhibit a higher tendency of EA. Whereas, the EA was found to be low in the participants without alcohol use disorder. Also, EA was a strong predicter of alcohol use and problems related to it. It also proved to be a mediator between alcohol consumption and distress.

DIF, DDF, EOT and TAS-20 Total in AD and NAD

On DIF, DDF, EOT and TAS-20 Total the AD is significantly higher than NAD. Our results are consistent with findings of Scigala et al. (2018) [135], where the authors reported that AD groups were found to be comparatively high on alexithymia. It was found that alexithymia leads to increase in fear of intimacy and also causes fear of rejection in a relationship. These results are in well support of attachment theory which depicts that attachment is associated with alexithymia in patients with AD.

Another study by Evren et al. (2008) [136] revealed that DIF, DDF and EOT were closely related with dissociation in case of AD patients. They concluded that alexithymia is associated with dissociation at elevated level in case of general public, psychiatric patients and non-clinical population.

2. The relationship of emotion regulation strategies on alexithymia and cravings in moderate and severe AD

CR and ES in moderate AD and severe AD

In our study, the results indicates that there is no significant difference in the moderate AD group and the severe AD group with respect to CR and ES. Our results do not show much significance which may be occurred due to small sample size. We have not found any conclusive evident from extensive literature review for the same.

A and R in moderate AD and severe AD

Our results exhibit that there is no significant difference in moderate and severe AD in case of A. These results are supported by the research of Aldao et al. (2012) [131] where they concluded that acceptance emotional regulation strategy has no association with alcohol use.

In our study, we observed high R in case of severe AD and low R in case of moderate AD. Our results are in accordance with the study done by Caselli et al. (2010) [132] where they examined the variation of R value with different levels of alcohol use. They also concluded that R plays an important role in predicting alcohol consumption levels and targeting R in the treatment of severe AD.

EA in moderate AD and severe AD

The results of our study shows that EA is on higher side in case of severe AD group as compared to the moderate AD. Westrup et al. (1999) [137] explored the negative life events on basis of relapsers and non-relapsers. They further added that individuals with EA experience had more tendency to relapse as compared to less avoidant ones.

DIF, DDF, EOT and TAS-20 Total in moderate AD and severe AD

Our study depicts that severe AD group is significantly high on alexithymia and its constructs in comparison to moderate AD. Our results are consistent with study of Kopera et al. (2015), [138] where they elaborated the relationship between duration of alcohol use with different emotional regulations. According to their results, individuals who had severe AD had more difficulty in describing their feelings and thoughts. The levels of alexithymia increased with elevation in alcohol consumption levels. This leads to poor utilization of one's emotions which further contribute to severe depressive symptoms.

Scigala et al. (2018) [135] had done the comparative study on alcohol addicts and non-addicts. They concluded that higher degree of AD leads to elevated levels of alexithymia. They supported that alexithymia causes different problems like identification, expression, recognition of own thoughts and feelings in alcohol dependent groups.

Cravings (OT, CD and OCDS total) in moderate AD and severe AD

Our results reveal that severe AD group has significance on cravings and its subscales in comparison to the moderate AD group. Our findings are well in line with Kuerbis et al. (2020) [139]. They recently done a study to relate cravings with alcohol severity levels. According to their observations, the levels of cravings are directly proportional to AD of individuals. Once the person starts to drink, the level of craving and its intensity goes up. Due to this craving behaviour, the individuals with high rate of craving have high possibility of relapse after extinction in case of AD.

Correlation between CR and ES with cravings in AD

The findings of our study depicts that there is no significant correlation between CR and cravings. Our results are supported by a study of Jansen et al. (2019) [141] where they reported emotional

processing, CR and cravings in AD patients. They did not find any significant correlation between CR and cravings for AD patients.

While, ES has a positive correlation with the CD subscale of OCDS and OCDS total. Kosravani et al. (2017) [141] studied the effects of CR and ES with craving subscales namely obsessive and compulsive by taking gender, depression and severity of alcohol as controlling groups. They concluded that high ES and low CR leads to obsessive and compulsive cravings in AD patients. These conclusions are consistent with our finding which establishes a positive correlation of craving with CD whereas no significant correlation in case of OT about alcohol.

Correlation between A and R with cravings in AD

Our results indicates that a significant negative correlation between A and CD which signifies that individuals who use A as an emotional regulation strategy exhibit less CD behaviour. Our results depict that craving has negative correlation with acceptance emotional strategy. These results are being supported by the study of Choopan et al. (2016) [142]. They revealed that more severe the temptation *i.e.* craving leads to quite weaker acceptance emotion regulation strategy of patient with AD.

On the other hand, R has a significant positive correlation with cravings and its subscales; OT and CD. Thus, indicating that more the R leads to higher craving. Our findings reveal that R emotion strategy has significant correlation with the cravings in AD patients. These results are consistent with the study done by Caselli et al. (2013) [143] where they explored rumination effect on cravings across different sets of population. They concluded that R contributes in increment in the levels of craving for AD patients.

Correlation between EA and cravings in AD

Our findings establish a positive correlation between EA and cravings. There is a significant correlation between EA with OT and cravings. Beadman et al. (2015) [144] did a study on emotional

regulation strategies in regard to craving cognitions. According to their results, there was significant decrease in the craving with decrease in the EA. And our findings are well supported by these results, where we observed that craving is directly proportional to EA in case of AD patients.

Correlation between CR and ES with DIF, DDF, EOT, TAS-20 Total in AD and NAD

The results in our study suggest that there is no correlation between CR and alexithymia in AD as well as NAD group. Stasiewicz et.al (2012) [145] examined the relationship between alexithymia and emotional regulation strategies. They revealed an insignificant correlation between alexithymia and CR. These results are in line with our observations where we conclude a negative correlation between alexithymia and CR emotional strategy. We have not found any significant correlation between alexithymia and CR emotional regulation strategy in AD.

We observed no significant correlation between alexithymia and CR emotional regulation strategy in AD group of patients. Our results are consistent with study of Laloyaunx et al. (2015) [146] which stated some contrasting patterns related to CR emotional regulation strategy in alexithymia among general public. Their results showed no significant correlation between alexithymia and CR.

Our findings exhibit a positive correlation of ES with DIF and overall alexithymia in AD group indicating that in AD, more the use of ES leads to elevated levels of alexithymia. These results are consistent with the findings of research done by Stasiewicz et.al (2012) [145]. They studied subscales of ERQ which had a significant correlation with alexithymia.

Whereas, the NAD group had no correlation between ES and alexithymia.

Correlation between A and R with DIF, DDF, EOT, TAS-20 Total in AD and NAD

Our results explore a negative correlation of A with EOT and total alexithymia construct in AD group. Whereas, there is no significant correlation of A with DIF and DDF in the same group. Our results show a significant correlation of alexithymia with acceptance emotional regulation strategy. Our observations are consistent with the study done by Stasiewicz et.al (2012) [145], where they revealed significant relationship of alexithymia with mindfulness (acceptance as sub-scale).

On the other hand, in the NAD group, we have not found any correlation between A and alexithymia.

The AD group has a significant positive correlation of R with DIF and total alexithymia construct, whereas no significant correlation has been found for R with DDF and EOT. Vecchiotti et al. (2016) [147] studied a significant correlation of alexithymia and alcoholism. They mentioned that the alexithymia could further lead to various clinical variables such as depression, rumination and dissociation. These results support our study as our findings also interpret a significant relationship between alexithymia and R in AD patients.

We have obtained a positive correlation between alexithymia and R for healthy control group. Our result can be validated with the help of study of Borrill.et al. (2009) [148]. They studied relationship between clinical variables like alexithymia, rumination for college students. They found a significant correlation between these variables.

Correlation between EA with DIF, DDF, EOT, TAS-20 Total in AD and NAD

Our findings shows that there is a significant positive correlation between EA and alexithymia along with all its subscales in AD group. Our results reveal a significant correlation between alexithymia and EA for alcohol dependent patients. These results are consistent with study done by Stewart et al. (2002) [149]. They explored association of

drinking alcohol with dispositional tendencies like alexithymia, sensitivity and experiential avoidance. They observed a positive correlation between these variables.

In the NAD group our study does not support any significant correlation between EA and alexithymia/ its subscales.

Correlation between CR and ES with cravings in moderate AD and severe AD

The findings of our study reveals that there is no significant correlation between CR and cravings in moderate AD and severe AD.

Our results show a positive correlation between ES, CD along with a positive correlation with OCDS Total (craving) in moderate AD

In the severe AD group, there was a significant positive correlation between ES and CD and OCDS Total. We observed a strong correlation between ES and craving (CD and OCDS) in severe AD as compared to moderate severe AD.

Correlation between A and R with cravings in moderate AD and severe AD

Our findings reveal no significant correlation between A and craving in both moderate and severe alcohol AD.

We found a significant correlation between R and craving (all subscales) in moderate as well as severe AD group.

Correlation between EA with cravings in moderate AD and severe AD

Our findings reveal the significant positive correlation between EA and craving (all subscales) in moderate as well as in severe AD.

Correlation between CR and ES with DIF, DDF, EOT and TAS-20 Total in moderate AD and severe AD

Our results depict no significant correlation between CR and alexithymia in the moderate and severe AD groups.

Our findings reveal a positive correlation between ES and alexithymia in severe AD group (all subscales), whereas, a positive significant correlation was found between ES and alexithymia total construct (also DIF subscale only) in the moderate AD group. Our results indicate that ES is strongly correlated with alexithymia in case of severe AD as compared to moderate AD group.

Correlation between A and R with DIF, DDF, EOT, TAS-20 Total in moderate AD and severe AD

Our results reveal no significant correlation between A and alexithymia in both moderate and severe AD groups.

Our results show a positive correlation between R and alexithymia with subscales DIF and alexithymia total (TAS-20) in the severe alcohol AD. Whereas, in the moderate AD group a positive correlation is found in R and alexithymia with DIF subscale only.

Correlation between EA with DIF, DDF, EOT, TAS-20 Total in moderate AD and severe AD

According to our findings there is a positive correlation between EA and alexithymia total (TAS-20) for both moderate and severe AD group.

With the help of extensive review of literature, we concluded that no prior research has been done to study correlations on the basis of severe and moderate AD groups. To the best of our knowledge, we are the first one to report the correlations between different variables on the basis severity of alcohol.

LIMITATIONS

Our study aimed to see the relationship of different emotional regulation strategies on alexithymia and craving in AD through self-report measures. The study relied completely on the self-reported measures. In spite the good reliability and validity of the questionnaires used, there is probability that participants might have felt lethargic while filling all the questionnaires together and thereby not attempting the questionnaires with full attention. It was a cross sectional study with purposive sampling. The age range was kept into consideration while conducting the research (18-70 years). The sample size of the research was small and was restricted to the male participants only. The SADQ-C measures severity of alcohol consumption with respect to the last 6 months of time duration; although it was specified in the instructions to respond with respect to the past six months of experiences but there is possibility that the participants neglected this aspect of the questionnaire.

SUMMARY AND CONCLUSIONS

The present study focuses on the relationship between emotional regulation strategies and alexithymia in AD and NAD. We explored the relationship between emotional regulation strategies and cravings in AD. We observed the relationship of emotion regulation strategies on alexithymia and craving in moderate and severe AD. In our study, we noted the following points:

- All the participants are male.
- Mean age of alcohol and NAD participants is 39.42 and 35.01 respectively.
- Most of AD participants are under-graduate (35%) whereas majority of NAD are post-graduate (43%).
- Higher number of participants belong to rural areas (53%) as compared to urban region (47%).
- Our control group is higher on CR as compared to AD group.
- AD group is significantly higher on ES as compared to control group.
- There is no significant relationship between control and AD groups in case A.
- R emotional strategy is more widely used by AD
- AD group exhibits higher EA as compared to NAD group.
- AD group is higher in alexithymia as compared to NAD group.
- There is no significant difference between CR and ES on basis of severity in case of AD group.
- There is no significant difference in A on basis severity in case of AD group.
- Severe AD participants more frequently use R emotional strategy.
- Severe AD participants are high in EA.
- Severe AD group is higher on alexithymia as compared to moderate AD group.
- Craving is found high in severe AD group in comparison to moderate AD group.

- There is no significant correlation is found between CR and craving.
- A positive significant correlation is found between ES and craving.
- A negative significant correlation is found between A and craving whereas R exhibits positive correlation with craving.
- EA has positive correlation with craving in AD group.
- EA exhibits significant correlation with alexithymia in AD group.
- ES has significant relationship with craving in case of both severe and moderate AD groups.
- R has positive correlation with craving in case of both severe and moderate AD groups.
- In severe and moderate AD groups, craving has positive correlation with EA.
- ES and alexithymia exhibit positive correlation in both severe and moderate AD groups.
- R has positive correlation with alexithymia in both severe and moderate AD groups.
- EA exhibits positive correlation with alexithymia in both severe and moderate AD groups.

On the basis of the above-mentioned points, we conclude that we have successfully studied different emotional regulation strategies and their relationship with alexithymia and cravings in alcohol dependence with the help of self-report measures of SADQ-C, ERQ, CERQ, BEAQ, TAS-20, OCDS, GHQ-12.

Our result reveals the relationship of various adaptive and mal-adaptive emotion regulation strategies on alexithymia and craving**.** When we studied correlation between different variables, the strongest correlation was found in EA and cravings. The weakest correlation was explored between R and alexithymia. We found a negative correlation between A and EOT and another negative correlation was found between acceptance and alexithymia total. Craving has been revealed as the crucial variable which has significant correlation with all maladaptive emotional regulation strategies.

Implications

Emotions have an essential role in our lives as they have an important impact on the way we perceive our surroundings and events along with the meanings associated with the perceived information. Our interpretation of situations is affected by our ability to regulate the emotions. The inability to manage the emotions adequately is the root cause of various physical and psychological problems. Difficulties in emotional regulation has been associated with AD. Alexithymia and craving are two concepts that are also associated with excessive drinking problems. The present work is a forward effort in this direction to explore and throw light on relationship of these variables with one another. The understanding of the relationship between different adaptive and maladaptive strategies on alexithymia and craving will help in nonpharmacological management of patients with AD.

Scope for Future Research

The future of the studies on emotional regulation strategies, alexithymia and craving lies beyond the self-reporting measures. Majority of the studies on these variables prefer self-reporting measures but the future research can combine these measures with projective techniques and behavioural assessments. A better and deeper understanding can be provided with the addition of some more variables such as socio- cultural factors. The laboratory tasks for measuring the craving can give a better understanding than the questionnaires. Therefore, the future researches should consider these possible methods for the test administration. The future studies can target on the adaptive and maladaptive strategies along with alexithymia and craving while planning a therapeutic management for patients with AD. The current study did not take an effective sample and was restricted to male participants only. Our study focused on exploring the relationship of emotional regulation strategies on alexithymia and craving, however the future studies can further aim to examine their underlying mechanism.

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S.No.	MRD	Name	Age	Education	Locality	SADQ-C	ERQ			CERQ			BEAQ	TAS-20				OCDS		
							CR	ES	Total	A	R	Total		DIF	DDF	EOT	Total	OT	CD	Total
1	877349	S	41	UG	Urban	44	8	27	35	6	16	22	75	30	25	28	83	20	28	48
2	1010309	JNG	32	UG	Urban	31	32	27	59	5	15	20	73	33	22	24	79	13	23	36
3	122468	SS	41	Below 10th	Rural	38	17	25	42	14	20	34	73	27	14	24	65	15	28	43
4	997360	DS	32	Below 10th	Rural	46	8	22	30	8	18	26	69	36	21	28	85	24	32	56
5	741442	LS	48	12th	Rural	39	24	26	50	14	10	24	40	16	17	28	61	17	20	37
6	834219	ASG	37	PG	Urban	40	17	16	33	10	16	26	58	29	21	21	71	14	22	36
7	1005351	RB	45	10th	Urban	31	10	25	35	7	15	22	67	26	27	27	80	15	24	39
8	767029	JS	34	12th	Rural	33	10	23	33	7	15	22	71	30	21	27	78	18	23	41
9	844048	MS	25	12th	Rural	33	10	23	33	13	14	27	65	25	28	30	83	14	18	32
10	850452	GS	40	10th	Rural	38	18	11	29	10	14	24	59	25	20	30	75	16	21	37
11	858032	DK	34	UG	Urban	40	18	24	42	10	20	30	75	28	25	28	81	17	18	35
12	858594	SS	48	Below 10th	Rural	42	11	20	31	7	12	19	66	20	20	32	72	14	20	34
13	601460	HS	32	Below 10th	Urban	35	12	20	32	8	15	23	75	21	30	35	86	15	25	40
14	868902	PG	39	UG	Urban	38	12	18	30	15	18	33	45	20	25	22	67	12	15	27
15	752444	GS	39	10th	Rural	35	10	16	26	10	15	25	68	20	28	30	78	15	15	30
16	869895	B	41	10th	Urban	42	18	20	38	12	16	28	54	21	20	20	61	12	15	27
17	871225	PK	46	12th	Urban	38	20	22	42	15	20	35	70	22	22	30	74	15	18	33
18	831120	IS	38	UG	Rural	40	11	20	31	8	12	20	68	18	20	25	63	18	20	38
19	875274	JS	38	12th	Urban	32	15	15	30	10	12	22	55	18	20	25	63	10	10	20
20	1027664	AG	41	Below 10th	Rural	36	18	10	28	10	8	18	75	18	20	25	63	12	16	28
21	877732	IS	37	UG	Urban	38	10	15	25	10	15	25	78	15	20	35	70	15	15	30
22	879970	AP	44	PG	Urban	42	20	20	40	15	20	35	78	26	20	20	66	18	20	38
23	882378	VS	36	UG	Rural	32	10	8	18	8	15	23	88	15	23	35	73	20	24	44
24	938195	HS	38	12th	Rural	41	20	18	38	15	20	35	69	21	25	15	61	25	30	55
25	892448	SS	40	UG	Rural	36	10	20	30	8	15	23	55	16	20	30	66	15	15	30
26	895951	VK	36	UG	Urban	36	15	18	33	10	12	22	45	16	20	25	61	15	18	33
27	897714	MSB	58	12th	Rural	38	20	20	40	15	20	35	85	20	20	25	65	22	26	48
28	678717	HS	57	10th	Rural	42	25	25	50	15	20	35	69	27	22	35	84	20	22	42
29	512228	SS	38	UG	Urban	38	12	18	30	10	15	25	60	22	22	22	66	15	18	33
30	898293	BG	61	10th	Rural	32	15	20	35	15	15	30	60	29	22	18	69	10	15	25
31	898902	PS	35	12th	Rural	34	18	20	38	10	20	30	55	20	22	25	67	14	16	30
32	89888	AK	24	UG	Urban	32	18	22	40	15	15	30	55	29	20	20	69	10	15	25
33	764314	SS	24	UG	Rural	31	25	15	40	10	15	25	62	15	22	28	65	10	10	20
34	898433	LS	48	12th	Rural	35	12	18	30	10	20	30	78	25	20	22	67	10	12	22

S.No.	MRD	Name	Age	Education	Locality	SADQ-C	ERQ			CERQ			BEAQ	TAS-20				OCDS		
							CR	ES	Total	A	R	Total		DIF	DDF	EOT	Total	OT	CD	Total
35	901136	SS	64	Below 10th	Rural	33	10	18	28	10	20	30	70	25	20	30	75	18	20	38
36	638628	VK	47	PG	Urban	40	20	25	45	15	20	35	80	25	25	35	85	20	20	40
37	902804	SS	33	PG	Urban	36	10	15	25	8	12	20	78	23	20	25	68	10	12	22
38	906471	MS	30	Below 10th	Rural	31	25	20	45	10	20	30	60	18	20	33	71	8	12	20
39	906865	S	60	10th	Rural	34	15	19	34	12	15	27	66	18	22	25	65	12	12	24
40	759012	CS	34	UG	Urban	36	20	22	42	10	20	30	80	29	22	26	77	20	22	42
41	889346	GM	33	UG	Urban	31	20	22	42	15	15	30	50	20	22	20	62	15	15	30
42	758994	VA	41	12th	Urban	33	20	23	43	10	15	25	88	25	20	25	70	12	15	27
43	913866	FS	47	12th	Urban	32	10	18	28	10	15	25	58	18	22	30	70	22	22	44
44	910162	RK	48	Below 10th	Rural	32	18	20	38	10	20	30	55	20	22	25	67	20	20	40
45	911269	AS	42	UG	Urban	31	18	20	38	8	15	23	60	18	20	24	62	12	12	24
46	340455	NK	44	12th	Rural	31	12	20	32	10	20	30	66	22	20	30	72	15	20	35
47	915236	MK	30	UG	Urban	31	25	20	45	10	15	25	60	17	20	25	62	15	15	30
48	365113	GS	39	UG	Urban	32	15	18	33	10	10	20	55	20	20	35	75	15	15	30
49	917207	MSG	45	12th	Rural	31	12	15	27	10	15	25	60	18	25	25	68	12	15	27
50	943542	SS	51	Above PG	Urban	40	15	25	40	10	20	30	80	22	25	30	77	20	20	40
51	1007487	SS	34	UG	Urban	19	21	18	39	13	14	27	44	22	17	22	61	10	22	32
52	1002037	HS	35	12th	Rural	30	13	18	31	12	14	26	55	22	23	24	69	14	12	26
53	1009800	GS	50	12th	Rural	18	18	19	37	9	10	19	52	23	17	22	62	16	19	35
54	979468	LS	30	UG	Rural	21	23	21	44	16	12	28	69	16	20	26	62	19	27	46
55	982991	JS	25	12th	Rural	18	28	23	51	15	18	33	57	26	17	27	70	6	16	22
56	996019	NM	38	UG	Urban	26	27	18	45	14	20	34	56	31	21	20	72	18	25	43
57	946718	DS	39	PG	Urban	16	30	18	48	6	8	14	54	15	23	23	61	12	12	24
58	820670	HS	52	Below 10th	Rural	21	15	7	22	13	9	22	33	15	25	23	63	12	17	29
59	837119	SJ	32	UG	Urban	21	14	21	35	10	16	26	62	22	19	30	71	13	20	33
60	920517	RS	38	Below 10th	Rural	17	20	21	41	10	10	20	50	22	22	21	65	12	10	22
61	921386	SK	27	UG	Rural	22	15	20	35	10	15	25	59	18	18	25	61	8	8	16
62	921445	KM	30	12th	Urban	18	15	17	32	15	15	30	40	19	20	25	64	10	12	22
63	752812	AK	53	12th	Rural	20	22	21	43	12	13	25	45	18	20	25	63	10	12	22
64	923478	RS	21	12th	Rural	16	20	20	40	12	13	25	52	18	18	25	61	12	13	25
65	120874	IS	43	UG	Urban	18	15	18	33	15	18	33	59	20	18	25	63	7	8	15
66	956705	A	37	Below 10th	Rural	17	14	16	30	15	18	33	66	25	18	20	63	9	12	21
67	993658	KS	33	12th	Rural	20	20	15	35	12	15	27	58	16	18	29	63	11	15	26
68	995396	BK	35	UG	Urban	16	16	18	34	12	15	27	49	19	17	25	61	12	16	28

S.No.	MRD	Name	Age	Education	Locality	SADQ-C	ERQ			CERQ			BEAQ	TAS-20				OCDS		
							CR	ES	Total	A	R	Total		DIF	DDF	EOT	Total	OT	CD	Total
69	1000820	TS	55	12th	Rural	16	22	18	40	11	13	24	59	17	16	28	61	13	15	28
70	1016178	DS	47	Below 10th	Rural	18	19	16	35	12	14	26	43	20	15	27	62	14	14	28
71	1014719	SS	52	10th	Rural	16	24	18	42	13	18	31	62	22	19	27	68	15	20	35
72	1014204	LS	27	UG	Urban	18	12	15	27	20	20	40	75	20	20	32	72	16	18	34
73	1014169	PS	32	UG	Rural	20	19	22	41	15	18	33	49	23	18	29	70	13	19	32
74	852809	S	31	PG	Urban	16	19	22	41	16	18	34	55	21	19	28	68	16	20	36
75	997360	DS	50	Below 10th	Rural	16	23	21	44	9	12	21	42	22	18	25	65	10	12	22
76	1002037	HS	40	UG	Urban	18	16	19	35	20	15	35	62	23	18	26	67	17	18	35
77	1011746	RS	40	10th	Rural	20	18	20	38	15	20	35	57	17	19	28	64	12	12	24
78	914558	PS	45	UG	Rural	20	15	19	34	16	18	34	66	23	21	20	64	6	7	13
79	915255	GS	23	UG	Urban	16	15	20	35	15	12	27	49	20	17	25	62	8	10	18
80	882460	SK	40	Above PG	Urban	16	17	20	37	19	18	37	42	22	19	27	68	11	15	26
81	911269	AS	60	10th	Urban	20	13	17	30	11	14	25	51	21	17	23	61	15	18	33
82	502500	DG	56	UG	Rural	17	15	18	33	10	13	23	61	19	19	27	65	8	10	18
83	910066	GS	29	UG	Urban	16	12	19	31	10	12	22	53	18	20	25	63	16	16	32
84	746389	YS	30	UG	Rural	16	12	16	28	14	13	27	57	20	18	25	63	13	16	29
85	905468	SK	27	UG	Rural	17	18	20	38	16	13	29	62	22	19	25	66	16	18	34
86	906924	PK	38	12th	Urban	16	18	19	37	17	15	32	59	21	20	23	64	12	16	28
87	1007350	GS	45	12th	Rural	16	18	20	38	13	10	23	62	18	19	25	62	15	18	33
88	993688	KS	33	Above PG	Rural	20	17	16	33	13	11	24	67	18	24	23	65	12	14	26
89	1000035	HS	39	12th	Urban	18	13	13	26	17	13	30	71	21	21	23	65	11	12	23
90	1003537	MK	33	12th	Urban	17	18	19	37	20	12	32	67	21	27	19	67	11	9	20
91	380763	GB	40	UG	Rural	20	12	19	31	9	12	21	43	29	21	18	68	17	11	28
92	810029	BS	28	UG	Urban	17	13	18	31	11	15	26	46	21	23	23	67	11	14	25
93	938195	HS	31	PG	Rural	24	15	16	31	12	12	24	51	22	17	27	66	9	9	18
94	927763	BS	50	Below 10th	Rural	18	16	20	36	15	13	28	51	20	19	23	62	9	10	19
95	930777	YS	40	UG	Rural	16	15	18	33	16	17	33	67	23	21	19	63	16	7	23
96	978702	PPS	25	UG	Urban	16	12	18	30	11	15	26	61	17	19	28	64	12	15	27
97	980938	SK	43	12th	Urban	15	14	20	34	15	13	28	51	20	16	25	61	12	10	22
98	980932	HS	55	Below 10th	Urban	20	17	19	36	19	18	37	69	23	19	22	64	15	7	22
99	902804	SS	33	UG	Rural	18	18	20	38	18	19	37	54	19	27	19	65	12	8	20
100	888634	KS	31	Above PG	Urban	20	13	15	28	20	19	39	69	22	19	29	70	16	16	32

S.No.	Name	Age	Education	Locality	ERQ			CERQ			BEAQ	TAS-20				GHQ-12
					CR	ES	Total	A	R	Total		DIF	DDF	EOT	Total	
1	SS	29	UG	Urban	21	23	44	15	13	28	61	30	21	23	74	8
2	KS	33	12th	Urban	19	17	36	18	12	30	44	12	22	22	56	3
3	MJ	45	UG	Rural	16	16	32	15	15	30	60	23	22	24	69	4
4	L	26	UG	Rural	23	16	39	14	12	26	58	24	14	22	60	9
5	NK	44	PG	Rural	21	19	40	18	12	30	62	12	13	22	47	2
6	RS	37	Above PG	Urban	23	21	44	14	11	25	57	12	19	31	62	3
7	IS	45	12th	Urban	16	14	30	10	9	19	59	31	22	20	73	5
8	BS	32	UG	Rural	31	22	53	7	9	16	64	15	25	21	61	5
9	S	26	UG	Rural	22	17	39	8	11	19	32	15	22	25	62	5
10	KK	41	PG	Rural	23	17	40	13	11	24	66	12	18	22	52	7
11	RB	33	12th	Urban	14	12	26	15	12	27	54	12	13	21	46	9
12	JS	34	PG	Rural	17	13	30	15	11	26	59	16	21	25	62	10
13	MS	23	12th	Urban	19	17	36	17	13	30	43	19	20	25	64	3
14	GSD	29	UG	Urban	18	18	36	18	11	29	39	14	22	27	63	3
15	DK	36	Above PG	Rural	21	15	36	15	12	27	55	17	22	21	60	5
16	SS	41	PG	Urban	25	22	47	10	9	19	54	21	21	22	64	4
17	HS	43	PG	Urban	23	22	45	13	11	24	67	23	20	22	65	9
18	PG	39	10th	Rural	21	16	37	15	15	30	54	16	22	21	59	8
19	GS	34	12th	Urban	16	12	28	12	11	23	49	14	16	26	56	4
20	SK	35	UG	Rural	19	18	37	14	8	22	34	16	17	28	61	6
21	PK	37	UG	Urban	19	11	30	10	10	20	43	21	15	28	64	7
22	GS	27	PG	Urban	23	17	40	14	11	25	56	25	14	23	62	4
23	KS	40	Below 10th	Rural	27	19	46	9	8	17	71	26	21	21	68	9
24	KS	41	PG	Rural	30	21	51	11	12	23	34	21	24	22	67	2
25	MK	40	UG	Rural	31	22	53	15	17	32	55	21	25	27	73	7
26	GB	36	12th	Urban	17	12	29	18	11	29	42	23	21	25	69	7
27	NK	33	UG	Rural	19	14	33	10	9	19	67	21	19	21	61	9
28	HS	34	PG	Rural	20	18	38	17	15	32	59	15	20	25	60	10
29	SS	38	10th	Urban	21	15	36	14	13	27	66	23	22	22	67	10
30	HS	26	PG	Rural	26	21	47	10	10	20	43	15	15	26	56	5
31	RK	35	UG	Rural	27	19	46	17	15	32	42	12	16	24	52	6
32	MS	27	10th	Urban	23	20	43	10	11	21	51	21	22	21	64	6
33	JS	24	Below 10th	Rural	18	15	33	17	14	31	61	12	21	26	59	9
34	DS	42	UG	Rural	30	19	49	10	9	19	58	16	22	22	60	4
35	SD	44	UG	Rural	31	26	57	10	8	18	57	22	21	27	70	6

S.No.	Name	Age	Education	Locality	ERQ			CERQ			BEAQ	TAS-20				GHQ-12
					CR	ES	Total	A	R	Total		DIF	DDF	EOT	Total	
36	JJ	36	PG	Urban	28	22	50	10	11	21	63	22	21	21	64	7
37	IK	33	12th	Urban	21	19	40	16	12	28	71	25	25	28	78	8
38	DS	32	UG	Rural	19	11	30	18	11	29	62	11	19	21	51	8
39	GS	40	PG	Rural	24	21	45	9	9	18	67	13	13	24	50	4
40	RK	35	Below 10th	Urban	27	22	49	14	11	25	45	14	16	22	52	7
41	VK	35	UG	Urban	24	19	43	16	11	27	56	15	22	18	55	3
42	RK	41	PG	Urban	27	18	45	8	8	16	43	15	16	21	52	4
43	RS	43	10th	Urban	21	19	40	7	9	16	56	22	19	22	63	5
44	KS	33	PG	Rural	29	15	44	15	11	26	54	24	21	26	71	4
45	A	41	UG	Urban	22	17	39	14	12	26	51	21	22	22	65	6
46	AK	44	Above PG	Rural	19	17	36	17	14	31	69	23	18	17	58	7
47	SS	29	12th	Urban	18	18	36	12	9	21	45	16	18	22	56	8
48	RS	39	UG	Urban	25	21	46	9	9	18	56	12	15	21	48	8
49	MS	44	PG	Rural	30	24	54	18	11	29	71	16	21	26	63	4
50	RS	31	UG	Urban	34	29	63	14	12	26	45	19	22	25	66	7
51	JK	45	10th	Rural	29	11	40	13	13	26	56	28	21	23	72	9
52	RS	30	UG	Rural	19	15	34	15	9	24	34	31	21	21	73	4
53	SK	25	UG	Rural	14	12	26	11	10	21	67	30	22	27	79	7
54	MS	38	Below 10th	Urban	22	18	40	11	9	20	51	21	13	31	65	8
55	JS	39	PG	Urban	14	12	26	8	8	16	43	22	15	21	58	4
56	DS	42	PG	Rural	17	15	32	12	9	21	50	15	22	22	59	3
57	IS	32	12th	Urban	19	12	31	12	11	23	48	26	21	26	73	6
58	MS	38	Below 10th	Rural	21	18	39	15	12	27	47	21	23	23	67	6
59	KK	27	UG	Rural	23	19	42	17	12	29	51	24	16	21	61	9
60	KS	30	UG	Urban	29	24	53	11	11	22	70	25	18	26	69	10
61	SK	33	Above PG	Rural	31	21	52	11	9	20	62	25	21	21	67	6
62	DS	21	12th	Rural	19	14	33	8	11	19	47	26	13	23	62	8
63	SS	43	Below 10th	Urban	17	15	32	9	9	18	67	21	22	21	64	9
64	KS	37	PG	Rural	27	21	48	14	11	25	57	21	25	28	74	4
65	JJ	33	PG	Rural	21	18	39	15	11	26	58	29	21	31	81	3
66	IK	35	Below 10th	Urban	26	22	48	15	12	27	34	16	22	22	60	7
67	DS	34	UG	Rural	18	15	33	10	9	19	38	18	16	23	57	7
68	GS	36	UG	Rural	15	12	27	12	10	22	55	21	21	21	63	8
69	RK	45	Below 10th	Rural	15	11	26	11	13	24	60	18	24	22	64	8
70	IS	28	PG	Rural	25	23	48	13	12	25	71	17	12	26	55	8

S.No.	Name	Age	Education	Locality	ERQ			CERQ			BEAQ	TAS-20				GHQ-12
					CR	ES	Total	A	R	Total		DIF	DDF	EOT	Total	
71	VS	27	UG	Urban	21	15	36	12	9	21	34	21	15	25	61	4
72	RS	32	12th	Rural	16	14	30	15	12	27	55	16	21	22	59	9
73	KS	31	PG	Urban	19	12	31	14	12	26	48	24	22	21	67	4
74	A	34	UG	Rural	30	21	51	11	9	20	51	18	15	28	61	4
75	BS	40	UG	Urban	25	23	48	8	8	16	70	24	16	31	71	8
76	SS	40	PG	Rural	27	21	48	12	11	23	45	15	15	22	52	7
77	RK	45	UG	Rural	23	17	40	15	12	27	47	17	16	21	54	8
78	VK	23	Below 10th	Urban	21	18	39	15	11	26	51	21	21	19	61	8
79	SS	40	UG	Urban	19	11	30	16	12	28	56	26	22	31	79	3
80	DS	30	UG	Urban	15	15	30	17	11	28	58	24	23	22	69	5
81	AS	26	12th	Rural	19	13	32	11	9	20	58	23	14	28	65	6
82	K	29	UG	Urban	21	17	38	15	12	27	43	25	16	21	62	9
83	IS	30	12th	Rural	28	21	49	12	11	23	43	22	21	22	65	9
84	BS	27	UG	Rural	21	18	39	15	11	26	71	15	21	22	58	10
85	NS	38	PG	Urban	16	11	27	8	8	16	62	15	24	22	61	10
86	RD	45	UG	Rural	19	15	34	17	12	29	67	19	22	28	69	5
87	GS	33	Below 10th	Rural	23	14	37	11	9	20	49	22	22	21	65	8
88	HS	39	PG	Urban	23	18	41	18	11	29	56	27	15	19	61	7
89	IS	33	Below 10th	Urban	28	21	49	7	9	16	43	19	16	17	52	9
90	RS	40	10th	Rural	27	22	49	11	4	15	56	15	12	31	58	4
91	KS	28	UG	Urban	27	24	51	16	12	28	44	27	15	32	74	4
92	MS	31	PG	Rural	21	13	34	12	12	24	70	22	11	23	56	6
93	S	34	PG	Rural	19	12	31	15	11	26	43	26	16	28	70	4
94	AA	40	10th	Rural	18	12	30	15	11	26	44	19	22	21	62	6
95	IS	25	12th	Urban	15	13	28	14	12	26	67	21	21	22	64	9
96	BS	43	UG	Urban	31	26	57	17	10	27	69	18	25	27	70	10
97	GS	45	UG	Urban	27	21	48	9	9	18	38	29	21	21	71	4
98	RS	33	Below 10th	Rural	22	15	37	14	11	25	36	19	22	22	63	2
99	GS	31	10th	Urban	17	12	29	14	10	24	44	21	15	26	62	9
100	MS	33	Above PG	Urban	24	21	45	15	12	27	64	19	13	21	53	9

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No. BFUHS/2K21p-TH/ 1620

Date 15/2/21

The Principal,
DMC,Ludhiana.

Subject: **Approval of Plan of Thesis.**

This is to inform you that the Faculty of Medical Sciences in its meeting held on 22.01.2021 has approved the plan of thesis of Dr. Ankitdeep Kamboj, a student of your college for **M.Phil. (Clinical Psychology)** along with the names of Supervisor/Co-Supervisor as under:-

Topic Plan of Thesis
A study on the relationship of emotional regulation strategies on alexithymia and cravings in alcohol dependence

Supervisor
Dr. Bholeshwar Prasad Mishra
Prof. & Head,
Dept. of Clinical Psychology,

Co-Supervisor
Dr. Pankaj Kumar
Assoc. Prof.,
Dept. of Psychiatry,
DMCH, Ludhiana.

Ms. Palak Upadhyay
Asst. Prof.,
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DMCH. Ludhiana.

The student has to submit the three copies of thesis (along with PDF format) , to the Controller of Examinations, BFUHS, Faridkot, at least six months before the commencement of theory examination, if he/she is otherwise eligible to take the examination. He /She must directed to attach a photocopy of this letter with the forwarding letter while submitting thesis to the University along with the letter of approval of University for change of supervisor/Co-Supervisor, change of topic,(if any).

Dr. S P Singh MS(Oph)
Controller of Examinations

Note :

1. *If any discrepancy found regarding topic of thesis or Supervisor/Co-Supervisor, inform undersigned within one month after issue of this letter.*

1

A STUDY ON THE RELATIONSHIP OF EMOTIONAL REGULATION STRATEGIES ON ALEXITHYMIA AND CRAVINGS IN ALCOHOL DEPENDENCE

THESIS PROPOSAL

FOR APPROVAL OF SUBJECT OF THESIS TO BE SUBMITTED

IN PARTIAL FULFILMENT OF THE REQUIREMENTS

FOR THE DEGREE OF

M.PHIL

in

CLINICAL PSYCHOLOGY

OF THE

BABA FARID UNIVERSITY OF HEALTH SCIENCES
FARIDKOT

June, 2020

Ankitdeep Kamboj

DEPARTMENT OF CLINICAL PSYCHOLOGY
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LUDHIANA

ABSTRACT OF PLAN OF THESIS

Title	A STUDY ON THE RELATIONSHIP OF EMOTIONAL REGULATION STRATEGIES ON ALEXITHYMIA AND CRAVINGS IN ALCOHOL DEPENDENCE
For the degree of	M.Phil Clinical Psychology
Name of the candidate	Ankitdeep Kamboj
Supervisor	Dr. Bholeshwar Prasad Mishra, Professor & Head, Department of Clinical Psychology, DMCH, Ludhiana
Co-supervisor	Dr. Pankaj Kumar, Associate Professor, Department of Psychiatry, DMCH, Ludhiana Ms. Palak Upadhyay, Assistant Professor, Department of Clinical Psychology, DMCH, Ludhiana
Institution	Dayanand Medical College & Hospital, Ludhiana
University	Baba Farid University of Health Sciences, Faridkot

Introduction: Emotional regulation is the ability to exert control over one's own emotional state. Inability to use the emotional regulation strategies effectively can lead to psychopathology. Studies show that emotional regulation strategies play a vital role in alcohol dependence. Alexithymia is a personality construct that characterizes inability to identify and describe emotions and dysfunction in emotional awareness. Cravings is a strong desire for alcohol. The present research aims to study the relationship of emotional regulation strategies and cravings in alcohol dependence.

Aim of Study: To study: 1. The relationship between emotional regulation strategies and alexithymia in alcohol and non- alcohol dependence. (moderate and severe alcohol dependence)
2. The relationship between emotional regulation strategies and cravings in alcohol dependence.

Materials & Methods: Information will be collected via predesigned performa. The tools used in the study: Severity of alcohol dependence questionnaire, emotion regulation questionnaire, cognitive emotion regulation questionnaire, brief experiential avoidance questionnaire, Toronto alexithymia scale, obsessive compulsive drinking scale and general health questionnaire -12.

Clinical Significance: Studies on the relationship of emotional regulation strategies on alexithymia and cravings in individuals with alcohol dependence have limited findings. The study can be helpful in therapeutic treatment and relapse prevention in individuals with alcohol dependence.

Keywords: emotion regulation strategies, alexithymia, cravings, alcohol dependence, non- alcohol dependence

(Signature) Candidate | (Signature) Co-supervisor | (Signature) Co-supervisor | (Signature) Supervisor | (Signature) Principal

CERTIFICATE OF FACILITIES AVAILABLE

This is to certify that the facilities for work on the subject of thesis titled **"A STUDY ON THE RELATIONSHIP OF EMOTIONAL REGULATION STRATEGIES ON ALEXITHYMIA AND CRAVINGS IN ALCOHOL DEPENDENCE"** exist in the Department of Clinical Psychology, DMC&H, Ludhiana and will be provided to the candidate. We will see that the data being included in the thesis is genuine and is collected by the candidate herself under our supervision and guidance.

Supervisor

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Co-Supervisors

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DR. B.P. MISHRA
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Place : LUDHIANA

Date : 30.06.2020

APPROVAL PROFORMA
BY
RESEARCH & ETHICAL COMMITTEE
DAYANAND MEDICAL COLLEGE & HOSPITAL, LUDHIANA

Name of candidate	Ankitdeep Kamboj
Department	Clinical Psychology
Topic of Thesis	A STUDY ON THE RELATIONSHIP OF EMOTIONAL REGULATION STRATEGIES ON ALEXITHYMIA AND CRAVINGS IN ALCOHOL DEPENDENCE
Likely date of appearing in PG examination	June 2021
Date of enrollment	23rd August, 2019
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Signature of Members of Research Committee with Stamp	**Signature of Members of Ethics Committee with Stamp**
Dr. Jaspal Singh (Professor & Head, Surgery)	Mr. A K Jindal (Member, Ethics Committee)
Dr. Dinesh Gupta (Professor & Head, Medicine)	Dr. Anu Sharma (Professor, Anatomy)
Dr. Sandeep Kaushal (Assistant Dean Academics)	Dr. Deepinder K Chhina (Professor & Head, Microbiology)
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Dr. Gurpreet S Wander (Vice Principal)	Dr. Gurpreet S Wander (Vice Principal)
	Dr. Gagandeep Singh (Secretary, Ethics Committee Professor & Head, Neurology)

Approved: Yes / No

Dr. Sandeep Puri
Chairperson
Research Committee

Approved: Yes / ~~No~~

Prof. Arvind Malhotra
Chairperson
Ethics Committee

BABA FARID UNIVERSITY OF HEALTH SCIENCES, FARIDKOT

PROFORMA FOR REGISTRATION OF SUBJECT FOR DISSERTATION

1	NAME OF THE CANDIDATE AND ADDRESS	ANKITDEEP KAMBOJ #22, JIWAN COMPLEX, LHERI GUJJRAN ROAD, PATIALA, PUNJAB
2	NAME OF THE INSTITUTE	DAYANAND MEDICAL COLLEGE & HOSPITAL
3	COURSE OF STUDY AND SUBJECT	CLINICAL PSYCHOLOGY (M.PHIL)
4	DATE OF ADMISSION OF COURSE	23rd AUGUST, 2019
5	TITLE OF THE TOPIC	A STUDY ON THE RELATIONSHIP OF EMOTIONAL REGULATION STRATEGIES ON ALEXITHYMIA AND CRAVINGS IN ALCOHOL DEPENDENCE

6. BRIEF RESUME OF THE INTENDED WORK

6.1 NEED FOR THE STUDY

Alcohol dependencies a clinical syndrome that comprised 'elements' such as tolerance, withdrawal and compulsive urges to drink alcohol (Edwards & Gross, 1976).[1] The International Classification of Diseases (ICD-10; World Health Organization, 1992)[2] describes a related concept, the 'dependence syndrome', as: 'A cluster of behavioral, cognitive, and physiological phenomena that develop after repeated substance use and that typically include a strong desire to take the drug, difficulties in controlling its use, persisting in its use despite harmful consequences, a higher priority given to drug use than to other activities and obligations, increased tolerance, and sometimes a physical withdrawal state. The dependence syndrome may be present for a specific psychoactive substance (e.g., tobacco, alcohol, or diazepam), for a class of substances (e.g., opioids), or for a wider range of pharmacologically different psychoactive substances.' Alcohol dependencies a clinical syndrome that comprised 'elements' such as tolerance, withdrawal and compulsive urges to drink alcohol. Emotional regulation refers to the modulation of emotional experiences, the understanding and acceptance of emotions, and the ability to behave in accordance with desired goals regardless of emotional states (Gratz & Roemer, 2002).[3] Gross and John (2003)[4] have proposed two independent main emotion regulation strategies: cognitive reappraisal and expressive suppression. The former states that reinterpreting the meaning of emotional stimulus. The individual revisits his or her emotional response to the circumstance. It includes two sections: a) acknowledgement of one's negative reaction, and b) reinterpretation of the situation to either lessen the severity of the negative reaction or exchange the negative state of mind towards more positive attitude. The latter expresses that suppressing the emotions to oneself and don't let others to think about it.

Aldao and Nolen-Hoeksema (2010)[5] examined which emotion

regulation strategies played a stronger role in psychopathology. They examined the relationship between four emotion regulation strategies: rumination, suppression, reappraisal, and problem-solving and symptoms of psychopathology: depression, anxiety, and eating disorders. Suppression and rumination, the two presumed maladaptive strategies measured, were more strongly associated with all three symptoms of psychopathology than reappraisal and problem-solving, the two presumed adaptive strategies measured. Aldao and Nolen-Hoeksema (2010)[5] argue that use of maladaptive 10 strategies plays a more important role in predicting psychopathology than does non-use of adaptive strategies.

Aldao and Nolen-Hoeksema built upon this finding to further investigate the interactive relationship between adaptive and maladaptive emotion regulation strategies in the prediction of psychopathology. Through a longitudinal (1-year) interview study, they examined use of rumination, acceptance, positive reframing, behavioral disengagement, denial, and suppression as well as symptoms of depression, anxiety, and alcohol-related problems. Aldao and Nolen-Hoeksema (2012)[6] found use of maladaptive strategies (rumination, suppression, behavioral disengagement, denial) moderated the relationship between use of adaptive strategies and psychopathology symptoms. In particular, adaptive strategies had a negative relationship with psychopathology only at high levels of maladaptive strategy use. The authors conclude that this suggests the effectiveness of strategies may depend on the other strategies in one's repertoire. In other words, adaptive strategies may be more important for individuals with a large repertoire that also includes maladaptive strategies.

Alexithymia is a personality construct characterized by difficulties identifying feelings (DIF), difficulties describing feelings (DDF), a lack of imagination and an externally oriented cognitive style (EOT) The alexithymia was first proposed by Sifneos (1973).[7] Sifneos (1973)

originally introduced the construct of alexithymia (i.e.; Greek translation for lack of words for emotions) to represent a set of features characterized by a lack of emotional awareness, difficulty identifying and describing emotions, a poverty of a fantasy life, and an excessive externally-oriented occupation with physical symptoms and external events. Sifneos first noted this lack of emotional awareness or —alexithymia among his psychosomatic patients presenting with symptoms such as ulcerative colitis, peptic ulcer, and rheumatoid arthritis. In order to delve more deeply into this new construct, Sifneos conducted a preliminary study to explore the prevalence of an alexithymia presentation in a randomly selected group of psychosomatic patients 34 compared to a control group of patients with a variety of diagnoses (e.g., depression, alcoholism, borderline personality). He concluded that the psychosomatic patients demonstrated more of his specified alexithymia criteria than the control group. The prevalence of alexithymia in alcohol dependent populations is between 45-67% (Thorberg et al.,2009).[8]

Cravings is characterized by a strong desire for alcohol. It is associated with impaired control over drinking, and includes obsessive thoughts and compulsive drinking behaviors. Cravingsis characterized by a strong desire for alcohol. It is linked with impaired control over drinking, and includes obsessive thoughts and compulsive drinking behaviors and plays an important role in the pathogenesis of alcohol-dependence and relapse (Addolorato et al.,2005).[9] It is an important part of the ICD-10 criteria for alcohol dependence and the DSM-5 criteria for an alcohol use disorder (Murphy et al., 2014).[10] It is often conceptualized within the context of the three-pathway psychobiological model of reward, relief, and obsessive motives (Verheul et al., 1999).[11]

There is evidence that alexithymia is related to alcohol problems. However, there is dearth of research on the relationship of emotion regulation strategies on alexithymia and cravings. The study can be

helpful in understanding the relationship of emotion regulation on alexithymia and cravings in alcohol dependence which can further be helpful in therapeutic treatment and relapse prevention in individuals with alcohol dependence.

6.2 REVIEW OF LITERATURE

Alcohol abuse models have found that people with emotion regulation deficits indulge in it as a means of masking their emotions. It seems therefore that lack of the ability to effectively regulate emotions might mark the onset and maintenance of alcohol abuse, as inadequate abilities to reign over impulses lead to drinking alcohol, which is expected to reign over the impulses.

A prospective study investigated whether emotion-regulation skills were associated with alcohol dependence and whether these skills predicted alcohol use during and after treatment for alcohol dependence. Participants were 116 individuals treated for alcohol dependence with cognitive behavioral therapy. Emotion regulation and severity of alcohol dependence symptoms were assessed by self-report. Alcohol use during the 3-month follow-up interval was assessed by self-report. Pre-treatment emotion-regulation skills predicted alcohol use during treatment, and post treatment emotion-regulation skills predicted alcohol use at follow-up, even when controlling for other predictors potentially related to emotion regulation. Among a broad range of specific emotion-regulation skills, the ability to tolerate negative emotions was the only skill that negatively predicted subsequent alcohol consumption when controlling for the other skills. Individuals in the alcohol dependence sample reported significantly more deficits in emotion-regulation skills than did those in a non-clinical control sample, but significantly less than did those in a sample of individuals exclusively meeting criteria for major depressive disorder (Berkinget al.,2011).[12]

A research conducted in 2015 investigated emotional regulation in alcohol-dependent (AD) patients, with the use of the 5 emotion regulation strategies and use of a semi-structured interview allowing a detailed and high- quality assessment of emotion regulation strategies. The research results suggested the alcohol dependent patients reported significantly greater use of response modulation and attentional

deployment, but lesser use of cognitive change (Petit et al., 2015).[13]

The regulatory role of alexithymia in coping with stress and negative affect is indicated in the results of the study by Lyvers et al. (2018)[14] as well as its role in the intensification of emotional sensations under the influence of alcohol. The context in which the deficits described under the concept of alexithymia develop determines the form of the disorder and defines which dominating emotions become disturbed and distorted.

A study investigated whether externally oriented thinking (EOT) mediates the association of drinking with these deficits, and to test the hypothesis that impaired facial emotion recognition mediates the relationship between EOT and low emotional empathy. The negative relationship between EOT and emotional empathy was mediated by impaired facial emotion recognition. The findings also point to a likely role of the EOT trait in the reported associations of alcohol misuse with both poor emotion recognition and low emotional empathy, and a mediating role of poor emotion recognition in the relationship of EOT to the latter. (Lyvers, Mccann, Coudouris, Edwards &Thorberg, 2018).[15]

Norberg et al. (2016)[17] showed that greater use of reappraisal was associated with decreased alcohol problems, and suppression was correlated positively with drinking before a main event.

Thorberg and colleagues (Thorberg, Young, Sullivan, & Lyvers, 2009)[16] conducted a critical review of the literature on alexithymia and alcohol related disorders, reviewing 24 studies published between 1973 and 2008. A high prevalence of alexithymia was identified among alcohol dependent (AD) populations (45-67%; Thorberg et al., 2009)[16], however the review only provided preliminary evidence for a relationship between alexithymia and alcohol consumption, and limited evidence to support alexithymia as an independent risk factor for the development and maintenance of AD.

A research on reasons for relapse in patients with alcohol dependence found that craving was noted as most common cause for relapse in

alcohol dependent patients. The study was conducted on patients with alcohol dependence in the inpatient psychiatric ward. The study sample was collected from 190 in-patients with Alcohol Dependence Syndrome (ADS) using a semi structured interview containing socio demographic variables and the reasons for relapse (Korlakunta, Chary & Reddy, 2012).[17]

6.3 AIMS AND OBJECTIVES OF THE STUDY

To study:

1. The relationship between emotional regulation strategies and alexithymia in alcohol and non- alcohol dependence.
2. The relationship between emotional regulation strategies and cravings in alcohol dependence.
3. The relationship of emotion regulation strategies on alexithymia and cravings in moderate and severe alcohol dependence.

7. MATERIALS AND METHODS

7.1 Source of Data

The study will be conducted among the patients diagnosed of alcohol dependence from outpatient and inpatient department of Psychiatry, Dayanand Medical College and hospital, Ludhiana.

7.2 METHOD OF COLLECTION OF DATA

Information shall be collected through pre-designed proforma for each patient that has been chosen to be a part of the study along with socio-demographic details, socio-economic class (according to Kuppuswamy socio-economic scale), presenting complaints, past history of alcohol/ drug abuse and psychiatric illness.

Inclusion Criteria for Study Group

1. Only males will be selected.
2. The patients with principal diagnosis of alcohol dependence.
3. The patients with moderate alcohol dependence.
4. The patients with severe alcohol dependence.

Exclusion Criteria for Study Group

1. The study excludes females.
2. The patients with mild alcohol dependence.
3. Patients with any co-morbid psychiatric disorders.
4. Patients with any other substance dependence, except nicotine.
5. Patients with any organic illness or condition

Inclusion Criteria for Control Group

1. Subjects will be selected from general population
2. The study includes males only.
3. The patients without a diagnosis of alcohol dependence.
4. The patients without a diagnosis of psychoactive substance use disorder.

Exclusion Criteria Control Group

1. The study excludes females.
2. The patients with a diagnosis of alcohol dependence.

3. The patients with a diagnosis of psychoactive substance use disorder.
4. Males with any other major psychiatric illness.
5. Males with any organic illness/ condition.

METHODS OF COLLECTION

The study will be conducted among the patients diagnosed of alcohol dependence from inpatient and outpatient department of psychiatry, DMCH Ludhiana. The data for the control group will be collected from general population. The data for the control group will be collected from the general population.

Severity of Alcohol Dependence Questionnaire (SADQ-C)- The SADQ- C is a short, easy to complete, self-administered, 20-item questionnaire designed to measure the degree to which help-seeking problem drinkers were experiencing the syndrome of alcohol dependence, as formulated by Edwards and Gross (1976).[1] There are five subscales with four items in each. These are variously labeled Physical Withdrawal, Affective Withdrawal, Withdrawal Relief Drinking, Alcohol Consumption, and Rapidity of Reinstatement. SADQ-C is a more recent version of the SADQ that has been developed for use in general health settings and in population surveys.

The Emotion Regulation Questionnaire (ERQ; Gross & John, 2003): The ERQ is a 10-item questionnaire that measures cognitive reappraisal (6items) and expressive suppression (4items). The Cronbach's alpha of the reappraisal and suppression was 0.79 and 0.73, respectively (Gross & John,2003)[6].

The Cognitive Emotion Regulation Questionnaire (CERQ; Garnefski et al.2001): It is a 36 items questionnaire given by Garnefski (2001)[18] that assess a person's cognitive emotional regulation strategies in response to threatening or stressful life events. The CERQ contains nine distinct subscales: five subscales for adaptive strategies (acceptance, positive refocusing, refocusing on planning, positive reappraisal and

putting into perspective) and four subscales for maladaptive strategies (self-blame, rumination, catastrophizing and blaming others). Four items are used to evaluate each of the CER strategies, measured on a five-point scale from 1 ("Almost never") to 5 ("Almost always") in terms of frequency of use. The items of acceptance and rumination subscales were used to assess maladaptive emotion regulation strategies.

The Brief Experiential Avoidance Questionnaire (BEAQ; Gamez et al., 2014): The BEAQ is a 15-item questionnaire given by Gamez et al., 2014[19] which assesses how true each statement is for participants on a 6-point Likert 13 scale from 1= strongly disagree, to 6 = strongly agree. Higher scores indicate greater agreement with the item.

Toronto Alexithymia Scale (TAS-20; Bagby, Parker & Taylor, 1994): The twenty-item Toronto Alexithymia Scale developed by Bagby, Parker and Taylor, (1994).[20] It consists of three subscales measuring three core dimensions of the alexithymia construct: difficulty identifying feelings (DIF), difficulty describing feelings (DDF), and externally oriented thinking (EOT). For each item, participants are asked to rate how much they agree with the statement on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree), with five items reverse-keyed. The TAS-20 demonstrated acceptable internal consistency (Cronbach's alpha =0.81).

Obsessive Compulsive Drinking Scale (OCDS; Anton et al., 1995): The OCDS is a 14-item self-report questionnaire which measures obsessive thoughts of drinking subscale (items 1–6) and the compulsive drinking subscale (items 7–14), developed by Anton et al., (1995).[21] The OCDS has revealed acceptable psychometric properties (Anton et al., 1995).

The General Health Questionnaire - 12 (GHQ - 12), developed by Goldberg in 1977[22] will be administered to the healthy control group to detect individuals who are at a risk of developing psychiatric disorders. It has been divided into four subscales: somatic symptoms,

anxiety/insomnia, social dysfunction and severe depression.' The translated version (Punjabi/Hindi) will be used after testing reliability.

SAMPLE SIZE: A total of 200 subjects (males); 100 with alcohol dependence (study group) and 100 without alcohol dependence (control group) of age rage 18 years to 60 years will be selected for the study.

OUTCOME: The find out the relationship between emotional regulation strategies and alexithymia in alcohol and non- alcohol dependence. To find out relationship between emotional regulation strategies and cravings in alcohol dependence. To study the relationship of emotion regulation strategies on alexithymia and cravings in moderate and severe alcohol dependence.

STATISTICAL ANALYSIS

Data will be described in terms of range; mean ±standard deviation (± SD), median, frequencies (number of cases) and relative frequencies (percentages) as appropriate. Comparison of quantitative variables between the study groups will be done using Student t-test and Mann Whitney U test for independent samples for parametric and non-parametric data respectively. For comparing categorical data, Chi square ($\chi 2$) test will be performed and exact test will be used when the expected frequency is less than 5. A probability value (p value) less than 0.05 will be considered statistically significant. All statistical calculations will be done using SPSS (Statistical Package for the Social Science) SPSS 21 version statistical program for Microsoft Windows.

7.3 DOES THE STUDY REQUIRE ANY INVESTIGATIONS OR INTERVENTIONS TO BE CONDUCTED ON PATIENTS OR OTHER HUMANS OR ANIMALS? IF SO, PLEASE DESCRIBE BRIEFLY.

NONE

7.4 HAS ETHICAL CLEARANCE BEEN OBTAINED FROM YOUR INSTITUTION IN CASE OF 7.3?

Attached herewith

8. LIST OF REFERENCES

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APPENDICES

APPENDIX A: INFORMED PATIENT CONSENT

Date: _____

I.....D/o,..... W/o, S/o..... .....am willing to participate in the study **"A STUDY ON THE RELATIONSHIP OF EMOTIONAL REGULATION STRATEGIES ON ALEXITHYMIA AND CRAVINGS IN ALCOHOL DEPENDENCE".** The procedure with its complications has been explained to me in local vernacular language. I have fully understood that no special tests and extra expenditure in any form, merely for the purpose of thesis is being carried out. I am free to opt out the study any time without assigning any reason.

....

Signature of the Witness Signature of the patient

Name:

Signature of Candidate **Signature of Supervisor**

मरीज अनुमति फार्म

तिथि_____

मैं_____ पत्नी/पुत्र/ पुत्री_____

निवासी_____ इस

शोधकार्य"A STUDY ON THE RELATIONSHIP OF EMOTIONAL REGULATION STRATEGIES ON ALEXITHYMIA AND CRAVINGS IN ALCOHOL DEPENDENCE" शोधकार्य इस मैं हूँ। सहमत लिए के लेने भाग में करता पुष्टि मैं हूँ। तैयार से स्वेच्छा अपनी लिए के लेने भाग मैं/ यह की हूँ करती दबाव ही न और गया दिया नहीं प्रलोभन आर्थिक कोई मुझे लिए के देने स्वीकृति मुझे और है गया दिया कर स्पष्ट श्यउद्दे का शोधकार्य इस मुझे है। गया डाला इस मुझे है। लिए के लाभ के मानवता और विज्ञान यह की है सविश्वा यह मैं समझ मेरी और है गया दिया समझा में बारे के जोखिम वाले होने में शोधकार्य है। मामुली बहुत जोखिम यह

अपनी समय भी किसी मैं सम्बन्ध के लेने भाग मैं शोधकार्य इस मैं सकता कर व्यक्त अस्वीकृति/ मेरे का करने व्यक्त अस्वीकृति मेरे और हूँ सकती पड़ेगा। नहीं प्रभाव कोई पर इलाज

_____ _____

हस्ताक्षर के गवाह हस्ताक्षर के रोगी/ निशान का अंगूठे

नाम: नाम:

_____

अन्वेषक केहस्ताक्षर

_____

हस्ताक्षर के विद्यार्थी

ਮਰੀਜ਼ ਰਜ਼ਾਮੰਦੀ ਫਾਰਮ

ਮਿਤੀ_____

ਮੈ_____ਪਤਨੀ/ਪੁੱਤਰ/ਪੁੱਤਰੀ_____

ਵਾਸੀ _____

"A STUDY ON THE RELATIONSHIP OF EMOTIONAL REGULATION STRATEGIES ON ALEXITHYMIA AND CRAVINGS IN ALCOHOL DEPENDENCE" ਤੇ ਚਲ ਰਹੀ ਖੋਜ ਵਿਚ ਹਿੱਸਾ ਲੈਣ ਲਈ ਰਜ਼ਾਮੰਦ ਹਾਂ। ਇਸ ਖੋਜ ਕੰਮ ਵਿਚ ਹਿੱਸਾ ਲੈਣ ਲਈ ਮੈ ਆਪਣੀ ਮਰਜ਼ੀ ਨਾਲ ਤਿਆਰ ਹਾਂ। ਮੈ ਇਹ ਦਸਣਾ ਚਾਹੁੰਦਾ ਹਾਂ/ ਚਾਹੁੰਦੀ ਹਾਂ ਕੇ ਇਹ ਰਜ਼ਾਮੰਦੀ ਦੇਣ ਵਾਸਤੇ ਮੈਨੂ ਕਿਸੇ ਵੀ ਤਰਾਂ ਦਾ ਲੋਭ-ਲਾਲਚ ਨਹੀ ਦਿੱਤਾ ਗਿਆ ਅਤੇ ਨਾ ਹੀ ਕੋਈ ਦਬਾ ਪਾਇਆ ਗਿਆ ਹੈ। ਮੈਨੂ ਇਸ ਖੋਜ ਦਾ ਮਨੋਰਥ ਸਮਝਾ ਦਿੱਤਾ ਗਿਆ ਹੈ ਅਤੇ ਮੈਨੂ ਇਹ ਭਰੋਸਾ ਦਵਾਇਆ ਗਿਆ ਹੈ ਕੇ ਇਹ ਖੋਜ ਵਿਗਿਆਨ ਅਤੇ ਮਾਨਵਤਾ ਦੀ ਭਲਾਈ ਲਈ ਹੈ। ਮੈਨੂ ਇਸ ਖੋਜ ਵਿਚ ਹੋਣ ਵਾਲੇ ਖਤਰੇ ਬਾਰੇ ਸਮਝਾ ਦਿੱਤਾ ਗਿਆ ਹੈ ਅਤੇ ਮੈਨੂ ਇਹ ਯਕੀਨ ਹੈ ਕੇ ਇਹ ਖਤਰਾ ਬਹੁਤ ਮਾਮੂਲੀ ਹੈ। ਮੈਨੂ ਇਸ ਖੋਜ ਕੰਮ ਵਿਚ ਹਿੱਸਾ ਲੈਣ ਦਾ ਢੰਗ–ਤਰੀਕਾ ਸਮਝਾ ਦਿੱਤਾ ਗਿਆ ਹੈ।

ਮੈ ਇਸ ਖੋਜ ਕੰਮ ਵਿਚ ਹਿੱਸਾ ਲੈਣ ਬਾਰੇ ਆਪਣੀ ਰਜ਼ਾਮੰਦੀ ਕਿਸੇ ਵੀ ਸਮੇ ਵਾਪਸ ਲੈ ਸਕਦਾ ਹਾਂ/ ਸਕਦੀ ਹਾਂ ਅਤੇ ਮੇਰੀ ਰਜ਼ਾਮੰਦੀ ਵਾਪਸ ਲੈਣ ਦਾ ਮੇਰੇ ਇਲਾਜ ਤੇ ਕੋਈ ਅਸਰ ਨਹੀ ਹੋਵੇਗਾ।

_____

ਗਵਾਹਦੇਹਸਤਾਖਰ

ਮਿਤੀ_____

ਪਤਾ _____

_____

ਨਿਰੀਖਕਦੇ ਹਸਤਾਖਰ

_____

ਸਿਖਿਆਰਥੀ ਦੇ ਹਸਤਾਖਰ

_____

ਮਰੀਜ਼ਦੇਹਸਤਾਖਰ

ਮਿਤੀ_____

ਪਤਾ _____

Appendix B: Proforma for history taking

Name:
MRD: **Date:**
Age:
Gender: a) Male b) Female
Contact No.:
Education: a) Illiterate b) Primary c) Middle d) 10^{th} e)12^{th} f) Graduate g) Postgraduate
Occupation: a) Unemployed b) Unskilled worker c) Semi-skilled worker d) Skilled worker e) Clerical/Shopkeeper/Farmer f) Professional g) Housewife/Household h) Student i) Retired
Marital Status: a) Single b) Married c) Unmarried d) Divorced e) Separated
Locality: a) Rural b) Urban
Religion: a) Hindu b) Sikh c) Muslim d) Christian e) Other
Family type: a) Nuclear b) Extended c) Joint d) Other e) Not Known
Head of the family – a) Name:
b) Age:
c) Education:
d) Occupation:
e) Income in Rs/Month:
Chief Complaints: _____
_____
_____
_____

Past Psychiatric history:

Alcohol/ Drug use: a) Yes b) No

Socioeconomic Class:

I. Upper
II. Upper middle
III. Lower middle
IV. Upper lower
V. Lower

Appendix C: Severity of Alcohol Dependence Questionnaire (SADQ-C)

Please recall a typical period of heavy drinking in the last 6 months. When was this?
___/___/___

Please select a number (either 0, 1, 2, or 3) to show how often each of the following statements applied to you during this time.

Questions	Almost never	Some times	Often	Nearly always
1.I woke up feeling sweaty.	0	1	2	3
2.My hands shook first thing in the morning.	0	1	2	3
3.My whole body shook violently first thing in the morning.	0	1	2	3
4.I woke up absolutely drenched in sweat.	0	1	2	3
5.I dreaded waking up in the morning.	0	1	2	3
6.I was frightened of meeting people first thing in the morning.	0	1	2	3
7.I felt at the edge of despair when I awoke.	0	1	2	3
8.I felt very frightened when I awoke.	0	1	2	3
9.I liked to have a morning drink.	0	1	2	3
10.I always gulped my first few morning drinks down as quickly as possible.	0	1	2	3
11.I drank in the morning to get rid of the shakes.	0	1	2	3
12.I had a very strong craving for drink when I awoke.	0	1	2	3
13. I drank more than 1/4 bottle of spirits a day (or 4 pints of beer/1 bottles of wine).	0	1	2	3
13.I drank more than 1/2 bottle of spirits a day (or 8 pints of beer/2 bottles of wine).	0	1	2	3
15. I drank more than 1 bottle of spirits a day (or 15 pints of beer/3 bottles of wine).	0	1	2	3
16. I drank more than 2 bottles of spirits a day (or 30 pints of beer/4 bottles of wine).	0	1	2	3

Imagine the following situation: (a) You have been completely off drink for a few weeks.

(b) You then drink very heavily for two days.

How would you feel the morning after those two days of heavy drinking?

Symptoms	No	Slight	Moderate	A lot
17. I would start to sweat.	0	1	2	3
18. My hands would shake.	0	1	2	3
19. My body would shake.	0	1	2	3
20. I would be craving for a drink	0	1	2	3

TOTAL SADQSCORE=_____

Appendix D: Emotion Regulation Questionnaire

Name:_____ Age:_____ Sex: _____

Instructions and Items:

We would like to ask you some questions about your emotional life, in particular, how you control (that is, regulate and manage) your emotions. Although some of the following questions may seem similar to one another, they differ in important ways. For each item, please answer using the following scale:

1	2	3	4	5	6	7
Strongly disagree			Neutral			Strongly agree

1. When I want to feel more positive emotion (such as joy or amusement), I change what I'm thinking about._____
2. I keep my emotions to myself._
3. When I want to feel less negative emotion (such as sadness or anger), I change what I'm thinking about._____
4. When I am feeling positive emotions, I am careful not to express them._
5. When I'm faced with a stressful situation, I make myself think about it in a way that helps me stay calm._
6. I control my emotions by not expressing them._____
7. When I want to feel more positive emotion, I change the way I'm thinking about the situation._____
8. I control my emotions by changing the way I think about the situation I'min. ___
9. When I am feeling negative emotions, I make sure not to express them._
10. When I want to feel less negative emotion, I change the way I'm thinking about the situation._____

APPENDIX E: The Cognitive Emotion Regulation Questionnaire (CERQ)

Please rate how true each statement is for you by checking a number next to it.

1	2	3	4	5
Almost Never	Never	Neutral	Always	Almost Always

1. I think that I have to accept that this has happened.
2. I think that I have to accept the situation.
3. I think that I cannot change anything about it.
4. I think that I must learn to live with it.
5. I often think about how I feel about what I have experienced.
6. I am preoccupied with what I think and feel about what I have experienced.
7. I want to understand why I feel the way I do about what I have experienced.
8. I dwell upon the feelings the situation has evok

Appendix F: Brief Experiential Avoidance Questionnaire (BEAQ)

Please indicate the extent to which you agree or disagree with each of the following statements.

1 Strongly disagree	2 Moderately disagree	3 Slightly disagree	4 Slightly agree	5 Moderately agree	6 Strongly agree

1.	The key to a good life is never feeling any pain.	1	2	3	4	5	6
2.	I'm quick to leave any situation that makes me feel uneasy.	1	2	3	4	5	6
3.	When unpleasant memories come to me, I try to put them out of my mind.	1	2	3	4	5	6
4.	I feel disconnected from my emotions.	1	2	3	4	5	6
5.	I won't do something until I absolutely have to.	1	2	3	4	5	6
6.	Fear or anxiety won't stop me from doing something important.	1	2	3	4	5	6
7.	I would give up a lot not to feel bad.	1	2	3	4	5	6
8.	I rarely do something if there is a chance that it will upset me.	1	2	3	4	5	6
9.	It's hard for me to know what I'm feeling.	1	2	3	4	5	6
10.	I try to put off unpleasant tasks for as long as possible.	1	2	3	4	5	6
11.	I go out of my way to avoid uncomfortable situations.	1	2	3	4	5	6
12.	One of my big goals is to be free from painful emotions.	1	2	3	4	5	6
13.	I work hard to keep out upsetting feelings.	1	2	3	4	5	6
14.	If I have any doubts about doing something, I just won't do it.	1	2	3	4	5	6
15.	Pain always leads to suffering.	1	2	3	4	5	6

Appendix G: Toronto Alexithymia Scale (TAS-20)

Please indicate the extent to which you agree or disagree with each of the following statements.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

1. I am often confused about what emotion I am feeling.
2. It is difficult for me to find the right words for my feelings.
3. I have physical sensations that even doctors don't understand.
1. I am able to describe my feelings easily.
2. I prefer to analyze problems rather than just describe them.
3. When I am upset, I don't know if I am sad, frightened, or angry.
4. I am often puzzled by sensations in my body.
5. I prefer to just let things happen rather than to understand why they turned out that way.
6. I have feelings that I can't quite identify.
10, Being in touch with emotions is essential.
11. I find it hard to describe how I feel about people.
12. People tell me to describe my feelings more.
13. I don't know what's going on inside me.
14. I often don't know why am angry.
15. I prefer talking to people about their daily activities rather than their feelings.
16. I prefer to watch "light" entertainment shows rather than psychological dramas.
17. It is difficult for me to reveal my innermost feelings, even to close friends.
18. I can feel close to someone, even in moments of silence.
19. I find examination of my feelings useful in solving personal problems.
20. Looking for hidden meanings in movies or plays distracts from their enjoyment.

Appendix H: Obsessive Compulsive Drinking Scale (OCDS)

Directions: The questions below ask you about your drinking alcohol and your attempts to control your drinking. Please circle the number next to the statement that best applies to you.

1.How much of your time when you're not drinking is occupied by ideas, thoughts, impulses, or images related to drinking?

(0) None
(1) Less than 1 hour a day
(2) 1—3 hours a day
(3) 4—8 hours a day
(4) Greater than 8 hours a day

2. How frequently do these thoughts occur?

(0) Never
(1) No more than 8 times a day
(2) More than 8 times a day, but most hours of the day are free of those thoughts
(3) More than 8 times a day and during most hours of the day
(4) Thoughts are too numerous to count and an hour rarely passes without several such thoughts occur- ring

InserttheHigherScoreofQuestions1or2here _____

3. How much do these ideas, thoughts, impulses, or images related to drinking interfere with your social or work (or role) functioning? Is there anything you don't or can't do because of them? [If you are not currently working, how much of your performance would be affected if you were working?]

(0) Thoughts of drinking never interfere—I can function normally.
(1) Thoughts of drinking slightly interfere with my social or occupational activities, but my overall performance is not impaired.
(2) Thoughts of drinking definitely interfere with my social or occupational performance, but I can still manage.
(3) Thoughts of drinking cause substantial impairment in my social or occupational performance.
(4) Thoughts of drinking interfere completely with my social or work performance.

4. How much distress or disturbance do these ideas, thoughts, impulses, or images related to drinking cause you when you're not drinking?

(0) None
(1) Mild, infrequent, and not too disturbing
(2) Moderate, frequent, and disturbing, but still manageable
(3) Severe, very frequent, and very disturbing
(4) Extreme, nearly constant, and disabling distress

5. How much of an effort do you make to resist these thoughts or try to disregard or turn your attention away from these thoughts as they enter your mind when you're not drinking? (Rate *your effort made to resist these thoughts* not your success or failure in actually controlling them.)

(0) My thoughts are so minimal, I don't need to actively resist. If I have thoughts, I make an effort to *always* resist.
(1) I try to resist most of the time.
(2) I make some effort to resist.
(3) I give in to all such thoughts without attempting to control them, but I do so with some reluctance.
(4) I complete and willingly give in to all such thoughts.

6. How successful are you in stopping or diverting these thoughts when you're not drinking?

(0) I am completely successful in stopping or diverting such thoughts.
(1) I am usually able to stop or divert such thoughts with some effort and concentration.
(2) I am sometimes able to stop or divert such thoughts.
(3) I am rarely successful in stopping such thoughts and can only divert such thoughts with difficulty.
(4) I am rarely able to divert such thoughts even momentarily.

7. How many drinks do you drink each day?

(0) None
(1) Less than 1 drink per day
(2) 1—2drinksperday
(3) 3—7drinksperday
(4) 8 or more drinks per day

8. How many days each week do you drink?

(0) None
(1) No more than 1 day per week
(2) 2—3 days per week
(3) 4—5daysperweek
(4) 6—7daysperweek

InserttheHigherScoreofQuestions7or8here _____

9. How much does your drinking interfere with your work functioning? Is there anything that you don't or can't do because of your drinking? (If you are not currently working, how much of your performance would be affected if you were working?)

(0) Drinking never interferes—I can function normally.
(1) Drinking slightly interferes with my occupational activities, but my overall performance is not impaired.
(2) Drinking definitely interferes with my occupational performance, but I can still manage.
(3) Drinking causes substantial impairment in my occupational performance.
(4) Drinking problems interfere completely with my work performance.

10. How much does your drinking interfere with your social functioning? Is there anything that you don't or can't do because of your drinking?

(0) Drinking never interferes—I can function normally.
(1) Drinking slightly interferes with my social activities, but my overall performance is not impaired.
(2) Drinking definitely interferes with my social performance, but I can still manage.
(3) Drinking causes substantial impairment in my social performance.
(4) Drinking problems interfere completely with my social performance.

Insert the Higher Score of Questions 9 or10 here _____

11. If you were prevented from drinking alcohol when you desired a drink, how anxious or upset would you become?

(0) I would not experience any anxiety or irritation.
(1) I would become only slightly anxious or irritated.
(2) The anxiety or irritation would mount, but remain manageable.
(3) I would experience a prominent and very disturbing increase in anxiety or irritation.
(4) I would experience incapacitating anxiety or irritation.

12. How much of an effort do you make to resist consumption of alcoholic beverages? (Only *rate your effort to resist,* not your success or failure in actually controlling the drinking.)

(0) My drinking is so minimal, I don't need to actively resist. If I drink, I make an effort to always resist.
(1) I try to resist most of the time.
(2) I make some effort to resist.
(3) I give in to almost all drinking without attempting to control it, but I do so with some reluctance.
(4) I completely and willingly give in to all drinking.

13. How strong is the drive to consume alcoholic bever- ages?

(0) No drive
(1) Some pressure to drink
(2) Strong pressure to drink
(3) Very strong drive to drink
(4) The drive to drink is completely involuntary and overpowering.

14. How much control do you have over the drinking?

(0) I have complete control.
(1) I am usually able to exercise voluntary control over it.
(2) I can control it only with difficulty.
(3) I must drink and can only delay be drinking with difficulty.
(4) I am rarely able to delay drinking even momentarily.

Appendix I: General Health Questionnaire -12 (GHQ-12)

We want to know how your health has been in general over the last few weeks. Please read the questions below and each of the four possible answers. Circle the response that best applies to you. Thank you for answering all the questions.

Have you recently:

1. Been able to concentrate on what you're doing?
   Better than usual (0) same as usual (1) less than usual (2) much less than usual (3)
2. Lost much sleep over worry?
   Not at all (0) no more than usual (1) rather more than usual (2) much more than usual (3)
3. Felt that you are playing a useful part in things?
   More so than usual (0) same as usual (1) less so than usual (2) much less than usual (3)
4. Felt capable of making decisions about things?
   More so than usual (0) same as usual (1) less than usual (2) much less than usual (3)
5. Felt constantly under strain?
   Not at all (0) no more than usual (1) rather more than usual (2) much more than usual (3)
6. Felt you couldn't overcome your difficulties?
   Not at all (0) no more than usual (1) rather more than usual (2) much more than usual (3)
7. Been able to enjoy your normal day to day activities?
   More so than usual (0) same as usual (1) less so than usual (2) much less than usual (3)
8. Been able to face up to your problems?
   More so than usual (0) same as usual (1) less than usual (2) much less than usual (3)
9. Been feeling unhappy or depressed?
   Not at all (0) no more than usual (1) rather more than usual (2) much more than usual (3)
10. Been losing confidence in yourself?
    Not at all (0) no more than usual (1) rather more than usual (2) much more than usual (3)
11. Been thinking of yourself as a worthless person?
    Not at all (0) no more than usual (1) rather more than usual (2) much more than usual (3)
12. Been feeling reasonably happy, all things considered?
    More so than usual (0) same as usual (1) less so than usual (2) much less than usual (3)